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Tests of Correspondence between Statistical Grouping and Formulæ

By Professor A. L. Bowley and Mr. L. R. Connor.

One of the chief problems in statistics is to ascertain whether the actual grouping according to some assigned classification of statistical observations is consistent with a particular hypothesis of the nature of that grouping. An experiment is said to be consistent with formula when the discrepancies between the two are not statistically significant. A complex of errors is significant when the individual errors taken in conjunction with one another are greater than can be accounted for by the fluctuations of sampling.

The application of the method generally used, the well-known χ^2 test worked out by Professor Karl Pearson in 1900 (Ref. 1), has recently been the subject of controversy (Refs. 2 and 3). An attempt is here made to define the hypotheses under which the competing methods of application are respectively valid; for the divergence of opinion does not depend upon correctness of mathematical reasoning, but on the selection of the assumptions proper to each problem.

N objects are observed and are grouped according to their magnitude or other characteristics in a number (say n) of compartments. Suppose that if the distribution followed exactly some assigned law, $m_1, m_2 \ldots m_n$ objects would be found in the successive compartments, but that in fact $\overline{m_1+e_1}, \overline{m_2+e_2}, \ldots \overline{m_n+e_n}$ objects are found; then the question is whether the observed errors ($e_1, e_2 \ldots e_n$) can be attributed to the accident of sampling or whether they show that the supposed law is not applicable to the data under consideration. It can be shown (Note 1) that if $m_1\ m_2, \ldots m_n$ are reasonably great (say that the least exceeds 10) the chance that in a random sample of N things from a universe containing many times N things, the particular complex of errors $e_1 e_2 \ldots e_n$ should be found is represented approximately by $Ce^{-\frac{1}{2}\chi^2}$; where C is a constant and $\chi^2 = e_1^2/m_1 + e_2^2/m_2 \ldots + e_n^2/m_n$, subject to the condition that $e_1 + e_2 \ldots + e_n = 0$.

It can further be shown (Note 2) that the aggregate chance that the complex $e_1, e_2 \ldots e_n$, or any other complex possessing a higher degree of improbability should be found is P:

$$\text{where } P = \int_{\chi}^{\infty} \chi^{n-2} e^{-\frac{1}{2}\chi^2} d\chi \div \int_{0}^{\infty} \chi^{n-2} e^{-\frac{1}{2}\chi^2} d\chi;$$

if there is no restriction upon the sample except that the total number of its objects should be N.

It is found (Ref. 4) that if χ^2 does not exceed $n-1$ the divergence is not at all unexpected, and that if χ^2 exceeds $2n$, its improbability is so great as to indicate that the law is not satisfied.

So far no doubt has arisen. The question under discussion is, what effect have any further restrictions upon the formula for P?

A.—Frequency Groups

Case I.—Where the distribution in the universe is completely known.

Example 1.—Three dice were thrown 648 times, and the number of 5's and 6's was noted at each throw (Ref. 5) :

"Successes."	*Frequency expected.*	*Frequency observed.*
0	192	179
1	288	298
2	144	141
3	24	30
	648	648

$\chi^2 = 13^2/192 + 10^2/288 + 3^2/144 + 6^2/24 = 2{\cdot}8$ (approximately).

$P = {\cdot}43$ (approximately), i.e., in 43 out of 100 trials the fit of observations to expectation would be as bad as or worse than the fit exhibited by this particular experiment.

Example 2.—Twelve dice were thrown 4,096 times and a throw of 4, 5 or 6 was reckoned a "success" (Ref. 5) :

"Successes."	*Frequency expected.*	*Frequency observed.*
0	24,576	24,007
1	24,576	25,145
	49,152	49,152

$\chi^2 = 2 \times (569)^2/24576 = 26$ (approximately).

P is negligible, and there is a strong presumption of bias in the dice.

A distribution of characteristics can be compared with a Mendelian distribution on this basis.

Case II.—Where the form of the supposed law is given, but not its parameters.

Example 3.—Bricks were placed end to end in groups of four. The conditions of the experiment were such as to lead to an expectation that the lengths of groups of four bricks would be distributed according to the normal curve of error. It is required to determine whether the results were consistent with such a law (Ref. 6).

The normal curve is known when its average and standard deviation are given : in the problem neither of these quantities is given *à priori*.

An approximate solution is found by choosing for the average and standard deviation the values calculated from the observations. The results were as follows :

Length of bricks in inches.	*Observations.*	*Formula.*
35 —	12	10
$35\frac{1}{4}$ —	43	52
$35\frac{1}{2}$ —	65	62
$35\frac{3}{4}$ —	23	18
	143	142

Here $\chi^2 = 2^2/10 + 9^2/52 + 3^2/62 + 5^2/18 = 3{\cdot}5$ (approximately) ; the discrepancies measured being those from the supposed law with the arbitrary constants.

The chance that so great a value of χ^2 would be found in a selection limited to 143 measurements, but otherwise completely random, is found by putting $n = 4$ in the formula for P. $P = {\cdot}33$ (approximately), so that a divergence as great as that found would occur in the long run about once in three experiments.

Mr. Fisher (Ref. 3) argues that the act of equating the theoretical average and standard deviation to those obtained from the sample imposes two additional restrictions upon the freedom of the observations to vary as between the respective compartments and that consequently the index of χ in P should be 0 instead of 2 (Note 3). This is equivalent to supposing either (*a*) that we are dealing with samples whose average and standard deviation are constant, or (*b*) that each sample is taken from a universe specially adapted to it. In fact, supposition (*a*) is not applicable to this or any but very artificial methods of sampling, and Mr. Yule (Ref. 7) verifies Mr. Fisher's formula by using supposition (*b*).[1]

Now if the question is, as stated above, whether or not the observations are consistent with a law of a given form but with parameters at choice (as we might ask whether or not a planet moved in an ellipse, the constants of the ellipse being *à priori* unknown), we are free to choose those parameters so as to make the discrepancy between the formula and the observations a minimum, or in any other way. The minimal solution is not always easy to obtain, and Professor Pearson, in his original paper (Ref. 1), followed the arbitrary method of finding the parameters by equating the average, standard deviation and third and fourth moments of the curve to those of the observations. χ^2 so obtained is not necessarily a minimum, and in fact χ^2 is subject to errors arising from sampling of an order equal to its own. The resulting P is not, therefore, necessarily the most favourable. If, with the curve thus arbitrarily chosen, we find a value of P little greater than n, we can say that the sample might have arisen if the law of its universe was as assigned ; if, however, P is greater than $2n$ we can only say that

[1] Mr. Yule calculates the value of χ^2 for a number of experiments, in *each* of which the parameters used are those found in the particular experiment.

the universe selected would not, without great improbability, have given rise to the sample, but that there might be a modification of the constants which would reduce the improbability.

If the formula contains as many as $n-1$ constants we can get an exact fit with $\chi^2 = 0$, $P = 1$, and the problem is nugatory. The more constants there are, the better the fit, but generally the aim in specifying the law is to use the simplest possible.

If the reasoning of the foregoing paragraphs is accepted, it will be held that Mr. Fisher's rule is not applicable to the problem of determining whether observations are consistent with a law of assigned form; nor is the method of equating the moments of the universe and of the observations sufficient to give a final result in the case of apparent inconsistency between the sample and the law. It follows incidentally that tables of P correct to several decimal places are over-refined in this method of determination.

The application of χ^2 and P in this case is at present the subject of discussion, and it is to be hoped that a firmer and more exact basis than that just indicated will be found.

B.—Contingency Tables

Case III.—Universe known and marginal totals fixed.

Example 4.—In a game of cards each player has half a pack of 52 cards, of which 26 are red and 26 are black. How much divergence from equality of red and black is to be expected?

	Red.	*Black.*	*Total.*
Player A ...	11 (13)	15 (13)	26
Player B ...	15 (13)	11 (13)	26
Total ...	26	26	52

Suppose the distribution to be as above, the most probable numbers being shown in brackets.

Here the chance of so great a divergence is $P = \sqrt{\frac{2}{\pi}} \int_{\chi}^{\infty} e^{-\frac{1}{2}\chi^2} d\chi$

where χ^2 as before $= S\,(e^2/m)$; and $e_1 = 2 = e_4$, $e_2 = 2 = e_3$; $m_1 = m_2 = m_3 = m_4 = 13$.

$\chi^2 = 16/13$. $P = \cdot 27$ (Note 4).

In this case the formula under Case I has two additional restrictions, namely, that the total of the first row and of the first column is 26, and these restrictions necessitate the second row and second column having the same totals. The power in P is $\chi^{n-4} = \chi^0 = 1$. If the divergence were very much greater it would indicate that the pack had been arranged in suits and not properly shuffled, or that, for some other reason, the distribution was not one of pure chance.

This method is properly used when in a known population, in which the sub-totals (such as total red, total black, total A's cards, total B's cards) are known, it is required to ascertain whether there is association between the possession of the two attributes classed in one corner of the table.

Case IV.—Universe not known, but estimated from the sample on the basis of no correlation.

Example 5.—*Developmental defects and dullness.* The following distribution was observed among a number of school children (Ref. 8) :

	With Defects.	*Without.*	*Total.*
Dull	888	1,186	2,074
Not Dull ...	1,420	22,793	24,213
Total ...	2,308	23,979	26,287

(*Scheme I.*)

It is assumed that the classification is definite and accurate.

If the proportions of dull and not dull had been the same, whatever the physical condition of the children, the distribution would have been :

	With Defects.	*Without.*	*Total.*
Dull	182	1,892	2,074
Not Dull ...	2,126	22,087	24,213
Total ...	2,308	23,979	26,287

(*Scheme II.*)

It is required to determine whether the excess, viz., 706, of those both defective and dull would not improbably arise in a chance selection if in fact there were no association between defect and dullness.

In this case we shall not treat the 26,287 children as forming the "universe," but as a random sample from an unknown larger universe. There is no means, without further information, of determining the constituents of this larger universe. In fact the results might arise, with greater or less improbability, from *any* universe which contained at least as many in each compartment as are recorded. We can, however, obtain a definite solution of the problem by ascertaining the probability of the sample occurring if the universe were that uncorrelated universe from which the sample would arise *with least improbability*. It is shown (Note 5) that in the universe so chosen the proportions in the four compartments are the same as in Scheme II. We may therefore apply the general formula, using Scheme II as our law of distribution, to determine whether so great a discrepancy was to be expected under the most favourable hypothesis. Then $e = +706$ or -706 in each compartment.

$\chi^2 = 706^2 (1/182 + 1/1892 + 1/2126 + 1/22087) = 3{,}257$, and P is of order 10^{-700} and is negligible.

So great a divergence could not have occurred in a random selection with no association between defects and dullness.

Here we have taken $\chi^{n-2} = \chi^2$ in the formula for P. The argument is as in Case II above. We do not know the universe and may

select any universe that shows no association between defects and dullness. Our selection does not restrict the freedom of the sample.

To make this case clearer, suppose that the observations had given the following scheme instead of Scheme I :

	With Defects.	*Without.*	*Total.*
Dull	202	1,872	2,074
Not Dull ...	2,106	22,107	24,213
	2,308	23,979	26,287

(*Scheme III.*)

χ^2 now $= 20^2$ ($^1/182 + {}^1/1892 + {}^1/2126 + {}^1/22087$) $= 2{\cdot}6$ and $P = {\cdot}46$.

The chance that Scheme III could have arisen at random from a universe defined by Scheme II is thus comparatively large, and the association between developmental defects and dullness would not, on this showing, be statistically significant : for we can find a universe in which there is no association, from which such a sample would not improbably have arisen by random selection. In this case there seems to be no reason to use Mr. Fisher's restrictions, for it is not assumed that all the samples (of which one is given) are chosen so as to have constant marginal totals.

The same method applies to a table in which there are several rows and columns.

A Doubtful Case

It is not always evident whether a set of observations belongs to Case III or to Case IV. Thus we might have the following records for an epidemic :

	Total Cases		
	Inoculated.	*Not inoculated.*	
Recovered ..	54	26	80
Died	6	14	20
	60	40	100

If we applied the method of Case III we should be assuming that the total number recovered, inoculated, etc., were given, and ask whether, if recovery and inoculation were totally unconnected, so large a number would be found by chance in the first compartment.

If we applied the method of Case IV we should be assuming that we were examining only a sample from a larger universe in which the proportions recovered : died and inoculated : not inoculated were not known.

P, by the method of Case III, is about ·002 ; by that of Case IV, is about ·025.

Writers differ as to which is the more appropriate method. It may happen in a particular case that P is infinitesimal by both methods, and that, therefore, it is not necessary to make a decision.

Appendix

Mathematical Notes.

1. Consider a sample of N objects, distributed among n compartments. Let the expected contents of the compartments be $p_1N, p_2N \ldots p_nN$, and let the observed contents be $p_1N + e_1, p_2N + e_2 \ldots p_nN + e_n$; where

$$p_1 + p_2 \ldots + p_n = 1$$
$$e_1 + e_2 \ldots + e_n = 0.$$

Then it may be shown by the multinomial theorem that the chance of the sample $p_1N + e_1, p_2N + e_2 \ldots p_nN + e_n$ having arisen at random from a universe containing many times N objects, in which the respective proportions in the compartments were $p_1, p_2 \ldots p_n$ is represented by :

$$\frac{N!}{(m_1+e_1)!\ (m_2+e_2)!\ \ldots\ (m_n+e_n)!}\ p_1^{m_1+e_1}\ p_2^{m_2+e_2} \ldots p_n^{m_n+e_n}$$

where $m_1, m_2 \ldots m_n$ are written for $p_1N, p_2N \ldots p_nN$.

If $m_1, m_2 \ldots m_n$ are reasonably large (say, that the least exceeds 10), Stirling's first approximation may be applied to evaluate the factorials, and we reach the asymptotic expression $Ce^{-\frac{1}{2}\chi^2}$; where $C = (2\pi)^{\frac{n-1}{2}}\ m_1\ m_2 \ldots m_n$; and $\chi^2 = e_1^2/m_1 + e_2^2/m_2 \ldots e_n^2/m_n$.

Since $S(e) = 0$, χ^2 involves only $n-1$ independent variables, and $\chi^2 =$ *constant* represents an ellipsoid of $n-1$ dimensions.

(See L. Bachelier (1912).—*Calcul des Probabilités*, Vol. I, p. 466.)

2. The whole chance that the given sample, or a worse fitting sample, should have arisen from a universe defined as aforesaid, is obtained by integrating the expression $Ce^{-\frac{1}{2}\chi^2}$ from χ to ∞ and dividing the result by the same integral from 0 to ∞.

The integration of $e^{-\frac{1}{2}\chi^2}$ with respect to $n-1$ variables is a known problem in integration by Jacobians, or by the analogy of a sphere in n-dimensioned space.

The result is :

$$P = \int_{\chi}^{\infty} \chi^{n-2} e^{-\frac{1}{2}\chi^2} d\chi \div \int_{0}^{\infty} \chi^{n-2} e^{-\frac{1}{2}\chi^2} d\chi$$

where n = the number of compartments.

3. Mr. Fisher's argument is that the act of equating the average of the supposed theoretical grouping to the average of the sample imposes upon χ^2 the additional restriction $S(ez) = 0$ (where z represents the abscissa of the average of a compartment).

If the integration of P is performed subject to this restriction then another of the e's can be eliminated, just as the condition $S(e) = 0$ allows elimination. The expression remains quadratic in $n-2$ e's and the index of χ in P is $n-3$. Generally each additional

linear restriction upon the freedom of the sample to vary as between the compartments reduces the index of χ further by one.

4. In the card case *all* the samples have three restrictions, viz. : total red cards = 26 ; total A's cards = 26 ; total cards in the pack = 52. Mr. Fisher's method (Note 3) applies.

5. Given a fourfold grouped sample $\frac{m_1 \mid m_2}{m_3 \mid m_4}$ it is required to find the uncorrelated universe from which the sample would have arisen at random *with least improbability.*

Let the proportions in the uncorrelated universe be $\frac{p_1 \mid p_2}{p_3 \mid p_4}$ $p_1 + p_2 + p_3 + p_4 = 1$; the condition of no correlation is represented by $p_1 : p_2 = p_3 : p_4$.

By the multinomial theorem the chance that the sample $\frac{m_1 \mid m_2}{m_3 \mid m_4}$ would have arisen at random from a universe as aforesaid is represented by

$$F = \frac{N!}{m_1!\, m_2!\, m_3!\, m_4!} p_1^{m_1}\, p_2^{m_2}\, p_3^{m_3}\, p_4^{m_4} ;$$

where $N = m_1 + m_2 + m_3 + m_4$.

The next step is to find the maximum value of F, or what comes to the same thing, the maximum value of log. F. This maximum value is found by equating the first partial derivatives of F to *zero* ; $m_1\ m_2\ m_3\ m_4$ being constant.

The substitutions $p_1 = \frac{1}{(1+a)\,(1+b)}$; $p_2 = \frac{a}{(1+a)\,(1+b)}$; $p_3 = \frac{b}{(1+a)\,(1+b)}$; $p_4 = \frac{ab}{(1+a)\,(1+b)}$ satisfy the conditions that $S\,(p) = 1$ and $p_1 : p_2 = p_3 : p_4$

Log. $F = m_2 \log. a + m_3 \log. b + m_4\,(\log. a + \log. b) - N\,\{\log.\,(1+a) + \log.\,(1+b)\}$ + constant

$$\left(\frac{d \log. F}{d\, a}\right) = \frac{m_2+m_4}{a} - \frac{N}{1+a} = 0 ;$$

$$\left(\frac{d \log. F}{d\, b}\right) = \frac{m_3+m_4}{b} - \frac{N}{1+b} = 0.$$

Then $a = \frac{m_2+m_4}{m_1+m_3}$; $b = \frac{m_3+m_4}{m_1+m_2}$; $1+a = \frac{N}{m_1+m_3}$; $1+b = \frac{N}{m_1+m_2}$

$$p_1 = (m_1+m_3)\,(m_1+m_2)/N^2.$$
$$p_2 = (m_1+m_2)\,(m_2+m_4)/N^2.$$
$$p_3 = (m_1+m_3)\,(m_3+m_4)/N^2.$$
$$p_4 = (m_2+m_4)\,(m_3+m_4)/N^2.$$

Hence the p's have the same value as if in the universe the totals of rows m_1+m_2, m_3+m_4 and columns m_1+m_3, m_2+m_4 were the same as, or in proportion to, those in the sample.

The method is readily extended to any number of rows and columns by writing the proportions in the universe :

$$\begin{array}{l} 1 \;\; a_1 \;\; a_2 \ldots \\ b \;\; ba_1 \;\; ba_2 \ldots \\ c \;\; ca_1 \;\; ca_2 \ldots \\ \ldots\ldots \\ \ldots\ldots \end{array}$$

all divided by $(1+a_1+a_2\ldots)\,(1+b+c+\ldots)$.

References

1. Karl Pearson (1900).—On the Criterion that a given system of Deviations from the Probable in the Case of a Correlated System of Variables is such that it can be reasonably supposed to have arisen from Random Sampling.—*Phil. Mag.*, July, 1900.

2. R. A. Fisher (1922).—On the Interpretation of χ^2 from Contingency Tables and the Calculation of *P*.—*J.R.S.S.*, January, 1922, pp. 87-94.

3. Karl Pearson (1922).—On the χ^2 test of Goodness of Fit.—*Biometrika*, July, 1922, p. 186.

4. A. L. Bowley (1920).—*Elements of Statistics*, p. 431.

5. Examples 1 and 2 were taken from Yule's *Theory of Statistics* (1912), pp. 259 and 267.

6. Example 3 was taken from Bowley's *Elements of Statistics* (1920), p. 307.

7. G. Udny Yule.—On the Application of the χ^2 Method to Association and Contingency Tables, with Experimental Illustrations.—*J.R.S.S.*, January, 1922, pp. 97-102.

8. Example 8 was taken from Pearson's *Tables for Statisticians and Biometricians* (1914), p. xxxv.

Public Authorities and Unemployment

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The statement that " the time to think about unemployment is the time of good trade " represents the main proposal to *prevent* unemployment. It intends that a responsibility should be placed on certain consumers who can be controlled, the central and local public departments, with a view to regularizing the total demand for labour. It is one of the advantages that have been claimed for public industries that they enable such control over employment to be exercised. On the other hand, there may be confusion between what is thus *possible* and what is *advisable.* It may not be the best arrangement that we *should* impose such control on public authorities, simply because we *can* do so. Or, at least, the nature of public works may be such that there are off-setting disadvantages, so that the net result in terms of social expediency will be less, but it may still be worth working for. What is asked of public authorities has been stated often as an obvious proposition regarding fluctuations. Reserve some work from the boom for the depression. Private employers might thereby lose their contracts, but public authorities have a monopoly of their industries, and will not lose the work by postponing it. They are therefore able to postpone their demand for materials and labour. The reservation, therefore, can be better made by public consumers, through whom a steadying effect on employment as a whole can be obtained. Its efficacy will depend on the proportion of public to total demand in terms of employment ; of that, I believe, there are no statistics. By reservation is meant not necessarily entire stoppage until a time of depression, but at least a greater rate of work then, and a definite planning of the adjustment in advance. It is a proposition in the time-mobility of labour. Misfits, which create unemployment, depend on imperfect mobility between times, places, and occupations. There is friction in each case. Urgency of work is the cause of this friction as between different times, analogous to various domestic causes which impede mobility between places.[1] But urgency is itself a function of foresight ; nothing is at any time *so* urgent, if it has been foreseen over a longer time. The question is one of degree—how far the period over which public requirements can be foreseen

[1] These have sometimes been got over by mobility of the *work*. The Washington Conference (pp. 64-5) refers to the practice of " allocating contracts as far as possible to firms in areas where serious unemployment exists," a policy limited in practice to the *Central* Departments.

fits into the periods of trade fluctuation. If there is foresight, the former period is probably more definite than the latter. And, therefore, general propositions on reservation have to be corrected by facts of public administration. This paper is concerned with these corrections. A number of considerations are put forward to explain why it is that the whole proposal hangs fire. These considerations could only be tested in detail by evidence, which we lack, from the public authorities themselves.

Public authorities might take the view that, if they make their own demand for labour as regular as possible, they are doing what everyone else ought to do, and that a straight policy of this kind is their proper contribution to the solution of the problem. The Geneva Report of 1922 admits this consideration. "Such, in fact," it says, "was the policy so successfully adopted by the administration of the Prussian railways. The question deserves to be examined from this point of view as well, and it is possible that a more detailed examination would lead to the conclusion that either of two methods should be recommended according to circumstances, either that of regularity in the orders and works of large public bodies, or else that of systematic variation opposed to the variations in individual orders." The former policy has evident advantages on such grounds as simplicity, administrative convenience, and force of example. The danger is that it might come in practice to mean not doing anything—regularity being taken for routine, and routine being whatever turned up. The assumption is also involved that the greatest general regularity is to be obtained by the sum of a number of individual regularities, and we cannot suppose this without examination of the relation of industries to each other. It would not, by analogy, give the best national result, if every place employed its own labour as far as possible; place, trade, and time mobility are all of importance, to secure the highest *degree* of employment.

My problem is one of explanation, since it does not appear that much has been done to carry out the repeated recommendations as to the regularizing of work by operating on the public demands for labour, so as to make them compensatory to the state of private demand. There has been a considerable development in the form of the recommendation. The Majority of the Poor Law Commissioners thought that it would be "pernicious" for public authorities deliberately to casualize their ordinary work "for the benefit of the intermittent labourer"; but that their "irregular" work, such as placed contracts, might be arranged to come on the market when "ordinary regular work" is slack. In conversation with municipal officials, I have found it difficult to fix all the distinctions implied in this complex proposition. Is the extension of a municipal gas supply "irregular" work? The Minority made the simpler proposition that local authorities "should be incited to undertake their ordinary municipal enterprises of a capital nature to a greater extent in the years of slackness than in the years of good trade."

The Development Act of 1910 included a clause to this effect. The Committees on Adult Education and on the Labour Exchanges repeated the advice in general terms. The Committee on the Transfer of Functions of Poor Law Authorities in 1918 over-rode all distinctions of regular and irregular work in their proposal that the scheme should be carried out, "so far as practicable, and subject to service requirements and due economy, by procuring such a rearrangement of the Council's works and services as to regularize the local demand for labour." In 1919 the Committee of the Industrial Conference asked for the postponement till falling trade of " contracts of a non-urgent character," and suggested one public department to deal with orders for particular classes of commodities. In 1921 the Labour Party, with all this authority, and that of the Washington Conference, behind them, embodied a complete proposal in a Bill. A Commission in America in 1914, and another in Ontario in 1916, had adopted the proposal from our recommendations.

The International Labour Office, in its Report of 1922 on *Remedies for Unemployment*, devotes a brief section to this proposal, which it distinguishes from all forms of work that only begin to be considered when there is a depression. It endorses the view that there should be, in each country, " a permanent institution for watching signs of depression and economic crisis." It points out that the policy which, apart from such control, tends to be followed by great public services is the very opposite of regularization. " Public revenue," it quotes, " faithfully follows the fluctuations of the economic activity of the country ; in times of crisis it tends to diminish. In order to meet the resulting deficits the administration cuts down expenditure as far as possible, and, consequently, postpones all work that does not seem absolutely indispensable. With the resumption of business the execution of many orders becomes urgent." The particular case of the railways in France is stated with much point.

This Report, and that of the Washington Conference, are important in showing how far this much repeated advice on an urgent social question has been found acceptable. The Washington Conference states generally " there is at present no example of this scheme working in its entirety, although several countries have made tentative efforts in this direction." In the United States and Canada it reports it has been applied with considerable success to seasonal fluctuations. But it is only with regard to France that it can report an attempt to handle the larger problem, the railways having been invited in 1907 " to submit a definite programme for the purchase of rolling stock over the years 1907-10." There is no comment on how this has worked. In the British Empire, there is no report of any schemes for the time-regularization of work.

The International Labour Office quotes nothing at all as regards any steps taken in this country. In other countries, there is a fair

amount of interest in the proposal. This interest has two degrees of strength, according as the tendency is to make scientific *information* available, or to charge some body with definite powers of *control.* France is the chief example of the former ; as to the latter, a Commission has been appointed in Canada to supervise government purchases ; a large committee, assisted by a technical council, was appointed in Italy by an Act of 1921 " to co-ordinate public works, taking into account the state of the labour market " ; a similar body was instituted by Royal Decree in the Netherlands in 1920. In other countries, there are efforts of a tentative kind. In the United States, a Bill providing a complete scheme has been introduced, but " met with considerable opposition, inspired by the fear that the reports published (under it) by the Department of Commerce would result, in certain cases, in precipitating the threatened crisis," a curious reflection on trade barometers.

The purpose of my paper is to consider difficulties that have to be faced, and perhaps to explain the slowness of developments in this country. As has been said, we are dealing with the *reservation* idea, not simply with the *public works* idea, which is so prominent at the present time. It is as a proposal for deliberate reservation that the Geneva Report considers it. You can, of course, borrow work from the future as you can save it from the past ; but, in fact, the method of reservation is more likely to secure foresight and preparation than the method of anticipation. The early stages of unemployment are more likely to be watched on the former method. The question is one of administrative problems. Does the clause " subject to service requirements " practically wipe the proposal out, so far as our local authorities are concerned ? Or is there mere ignorance and neglect ?

It is understood that local authorities would not create, by dovetailing their work, a reserve of labour of their own, whose employment would vary inversely with the activity of private industry. That would plainly be pernicious. There is already a considerable seasonal fluctuation in ordinary municipal employment. But contracts which are to offset the tendency of private trade are to go on the market in the ordinary way, and the compensatory influence is to be within the field of private industry. No problem of mobility between public and private employees *need* arise.

The following are the considerations which were brought out in some inquiries of my own. In the first place, the fact of annual elections affects the continuous policy of local authorities. The carrying out of large schemes may be made an issue on various grounds. There are always some unemployed ; business interests may be involved in such schemes as extension of gas or electrical facilities ; public health and welfare are involved in the building of houses and schools. Electoral pressure comes from one or other of these interests. Public opinion has to be trained to the long view of the question.

Second, I doubt whether those who are mainly responsible for

works policy in municipalities are properly informed on the question. That in turn raises the question whether their evidence has ever been taken. The evidence before the Poor Law Commission is voluminous, but I cannot find that any municipal representatives were examined on the administrative problem of regularizing their work. It has become habitual to make the recommendation, on general grounds, over their heads. A Treasury Committee was appointed to consider some aspects of the question in 1914, but was presumably dissolved by the war. The findings of the Poor Law Commissioners are based, mainly or entirely, on a statistical estimate by Professor Bowley, who considered what sum would have been necessary to bring wages up to an even standard over a past decade. To have municipal evidence is necessary, both to engage their interest and to supplement statistical with administrative possibilities.

Third, such evidence would, I believe, bring out some aspects of public work, especially in its relation to private industry, for which more allowance has to be made. Some public work is, by its nature, fundamental to the maintenance of private industry, and has to be regulated for completion by a definite date. The extension of a gas supply has to foresee the growth of the city, so that gas for industrial purposes shall be adequately available in new areas. And when, as in the case of one very large corporation, complaints are coming in by the hundred that a more powerful system is wanted by industry, officials naturally say that it is no use postponing work, thereby possibly creating a tendency to unemployment, and then filling up the hole you have created. In this case, a definite period of seven years was fixed for the *completion* of a large scheme, in view of city development. When this limit is known, and the next period of unemployment is unknown, there is *prima facie* an administrative problem in postponement, of which fuller examination by evidence is required. The attitude of the administrator is different from that of the statistician, since the latter is looking back on fluctuations which have occurred, and is deciding what degree of reservation would have evened the fluctuation ; the former does not know the future fluctuation, is subject to pressure from various sources, especially the pressure of growing population, and wishes to see his way to be up to time. It is evident that the device of a good trade barometer will bear closely on this administrative difficulty.

Fourth, there may be a question of the effect of postponement on various types of labour. In the execution of any large contract there are concerned the makers of materials employed, the contractors for carrying out the work, and the labour which will operate the new establishment when it is completed. It is plain that the effect of reservation is to create at a future time more work for what may be called *constructional* labour—e.g., the makers of gas-piping, and the men employed in digging mains. But if this were done without reservation, then in the next depression there would be more work for *operating* labour, the men working at gas retorts, for example. It is difficult to say, without evidence, how much this

consideration is worth. But as the gain in terms of work is to be made over a certain time, and this is the essence of the whole proposal, it will be at most a net gain, subject to some deduction, over that time. Of course, also, the assumption is that the time would be one of depression, which might *in any case* reduce operating work ; and that would lessen the deduction. But there is a point there to examine, which is quantitative as regards labour, and it has not been examined.

Fifth, the question is asked by Mr. Rowntree, in his *Unemployment*, what good does reservation do, since there is always some unemployment ? An unemployed man, it may seem, is just as much in distress when he is one of a hundred as when he is one of a thousand other unemployed. His answer to this is on the lines of the general results of regularization, which will show up any labour surplus which is not of the nature of " reserve," and enable this surplus to be dealt with by such methods as emigration or training. The good that is done therefore depends on this other aspect of the question being simultaneously dealt with. But this answer can be strengthened by reference to the facts of unemployment. In good times, there is a greater proportion of unemployment which is due to changing jobs ; in bad times, a greater proportion of distressful idleness. And again, it is doubtful if those who are in distressful unemployment in good times are the types of labour who would be taken on then for constructional work. Surprising, but unpublished, figures on this point, taken over a period of very good trade, were supplied to the Barnes Committee.

Sixth, the problem of capital loans for constructional developments has been an important part of the argument. Borrowing is done on cheaper terms when trade is slack ; and, therefore, bad times may be compelled to yield a certain advantage to undertakings, which squeezes a certain amount of their badness out of them. This view was strongly put by the Minority of the Poor Law Commissioners. I think that a question might arise, from the side of local authorities, as to the measure of this advantage. When a municipality decides on an extension of plant, how far is it essential to know the capital liability at the outset ? Some borrowing must probably be done at once. Is there any administrative problem involved in splitting up their loans, borrowing a part at the outset at a known charge, and postponing a part *in the hope* of a lower rate when trade is worse ?—but with the risk, of course, of having to borrow again in the interval at a higher rate. It is plain that every study of fluctuation which makes prophecy less uncertain lessens this risk. But there must be—I know there is—a municipal point of view on this matter, and its open statement is the best way to secure any necessary correction. The Geneva Report of 1922, following the pre-war International Association against Unemployment, suggests another method—" That all budgets should be sufficiently large to allow administrative offices to create *reserve*

funds for the execution of non-urgent work and deliveries in years of crises and depression." By this means the credit is earmarked, as well as the work. Possibly this may make the reservation itself easier. But, to some extent at any rate, it over-rides the argument based on cheaper borrowing in a depression. Of course, both cheaper borrowing and cheaper costs imply the depression ; that is to say, that public demand does not withstand the depression, but rescues what it can from it. If there are public demands sufficient, by proper arrangement, to " even out " the market for goods and capital, then of course the prices of both will be held up. What will be saved will be boom prices.

Seventh, the local authority is not at present in sufficiently close touch with the administration of employment. It has not got ears and eyes of its own in the locality. The present local employment committee belongs not to it, but to the Minister of Labour. As a rule, employers and workpeople's representatives constitute it entirely, and the municipality is not represented. For the discharge of the function of regularization, it is not in close enough touch with the Labour Exchange, since that function requires more than notification of unemployment percentages. It means observation of tendencies, and of the threatened incidence of unemployment on the kinds of labour in detail. The Minister of Labour must remain responsible for a good deal of local administration affecting unemployment, such as the staffing and discipline of the Exchanges, while they remain a national service. Many objections have been made to the abolition of the local employment committees. As the local authority has now been advised to have its own committee on unemployment and regularization, there will be duplication if this proposal is carried out without a general agreement as to functions, or sharing of representatives, or reference to each other. The new committee will have very difficult duties, and will be more open to criticism than any existing committee, and it will require the utmost possible co-operation with the Minister's own organization. All this needs clearing up.

Eighth, we do not want to do anything which may lessen the sense of responsibility as regards unemployment on the part of private industry. Employers should not be led to suppose that there is a scheme whereby, in good times, they are free to work all the overtime they like and make all the money they can, the inevitable reaction being provided against by some activity of a new committee of the local authority. Private industry has to tread its own path toward the solution of the problem ; the " industrial principle "—i.e., the principle of the industry acting as a unit—is taking shape, and probably more is possible on these lines than on any other. Statistics are lacking to show to what extent municipal work can be a make-weight in relation to industry as a whole ; one-fifth would be a high estimate. The Philadelphia Committee on Unemployment thought it was inconsiderable, but gave no reasons. What private industry

can do is not limited to, nor necessarily dependent on, insurance. The fundamental fact is that during unemployment goods are not being made for which there will shortly be an active demand. Some possibilities of accounting do not seem to have been explored, whereby the industry as a whole would account to individual firms for goods made and held in a depression, and resold back or to the market. Any such developments should not be weakened by seeming to solve the whole problem on public lines. Some evidence was given to the Barnes Committee that even Labour Exchanges lessened the sense of private responsibility. This was not made out, and the other point of view might be taken that, if public authorities were seen to be tackling their end of the problem with a view to regularization, private industry might be stimulated by the example, and take up for itself the problem of co-operating with this endeavour.

The proposal to place unemployment insurance on the industries is largely based on the idea that thereby preventive work will be more fully undertaken. But the issue of prevention could hardly be raised without bringing up the whole question of regularization. The wide question is not industrial insurance, but the utmost possible prevention of unemployment. And since the repeated proposals for action by public authorities do not seem to have come to anything in this country, it may be desirable that any inquiry should include the whole question. We lack full administrative and statistical evidence. If public authorities cannot really do much, any possibilities which may lie in industrial insurance are thereby more important. If industrial insurance is not workable, the possibilities of compensatory action between public and private employment are thereby more important. As both aspects are ripe for examination, it is expedient that they be examined together.

At present we have an emergency problem, but the normal problem will recur. The essence of that problem being foresight, it is foresight that is also required in order that its exploration may be accomplished in time. If we cannot prevent much unemployment, by regularization or by motives arising out of industrial insurance, the sooner we know it the better. We must then consider other things, the land, the tariff, or alleviation and maintenance. Economists have a special interest, since public impatience with the problem tends to explode upon them, and on all economic teaching. For example, the *Manchester Guardian*, in discussing the conditions of the coal industry this year, remarks bitterly, of the present system as a whole, that " somehow it works. And that is all that the economist knoweth, or needeth to know, on this earth. But this time it will not work."[1] So, in the schoolboy's essay, relativity is " due to Professor Einstein." Suppose, therefore, that, next time trade is active, a few economists write to the Press to point out that, according to a long series of inquiries, this is the time

[1] June 9th, 1922.

to think of unemployment, when it is at its minimum ; and to ask if any reservations of work and credits are being made. Will such a letter at such a time be taken seriously, or as a nuisance ? Any excuse for neglect would be removed if, in the meantime, the administrative problem had been threshed out and, in that process, the interest of the public authorities awakened.

Le rôle de l'Angleterre dans la formation Démocratique française contemporaine[1]

By Paul Vaucher,
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Les histoires de nos deux pays peuvent s'éclairer l'une par l'autre. Sans doute elles nous les montrent souvent aux prises dans des luttes opiniâtres et de longues rivalités. Mais nous assistons aussi à la formation l'un à côté de l'autre de deux états démocratiques modernes. En se constituant ils ne pouvaient pas s'ignorer. L'Angleterre, parvenue la première à un régime stable de liberté, a d'abord exercé une influence bien connue sur les débuts de la Révolution Française. Mais les conditions où se trouvait alors la France ne permettaient pas d'y introduire un régime politique emprunté à l'Angleterre. Qu'en est-il aujourd'hui ? Au cours du 19e siècle une lente évolution parait bien avoir opéré un rapprochement plus solide et plus profond que n'était l'accord de quelques théoriciens, d'un Blackstone et d'un Montesquieu. On pourrait montrer, je crois, que l'Angleterre s'est à bien des égards rapprochée de la France ; mais aujourd'hui je veux me limiter à l'autre partie de ce sujet, et rechercher comment notre démocratie s'est rapprochée de la vôtre. L'histoire des deux peuples doit mettre en lumière leurs divergences, mais elle peut aussi constater leur rapprochement. Les différences qui nous séparent sont en partie irréductibles parce qu'elles proviennent de causes naturelles. Le rénovateur de la science géographique en France, Vidal de la Blache, a fait récemment un portrait saisissant de ce qu'il appelle la " personnalité géographique " de la France. Il marquait l'importance de la place qu'elle occupe à l'extrémité du continent, entre la Méditerrannée et l'Océan, au point de rencontre de la civilisation roumaine et des invasions barbares. Et, dans l'extrême variété des régions qui constituent son territoire, il faisait ressortir la prépondérance inévitable de l'immense plaine du bassin parisien où tout converge vers la capitale.

L'histoire de la formation de l'état français reflète les conditions inscrites ainsi sur son sol. Elle nous raconte les progrès de la dynastie Capétienne, formée entre Seine et Loire, de Paris à Orléans, entrant en lutte contre les maisons féodales qui l'encerclaient et s'aggrandissant peu à peu de leurs dépouilles. Nous voyons les agents du Roi pénétrer dans toutes les parties du Royaume pour y faire prévaloir sa volonté. Mais, tandis que l'autorité du Roi

[1] Leçon d'ouverture donnée à la School of Economics le 5 octobre, 1922.

lentement s'étend et s'organise, la dynastie Capétienne est constamment menacée par les ambitions de ses voisins. De la Normandie à la Flandre et à l'Aquitaine elle est aux prises avec les rois d'Angleterre. A peine Charles VII a-t-il vu la fin de la guerre de Cent Ans que son fils Louis XI doit entamer contre la Maison de Bourgogne une nouvelle guerre, qui n'est elle-même que la préface de celles qui vont se poursuivre entre François I et Charles Quint, puis entre les Bourbons et les Habsbourgs. Au XVII^e siècle enfin la France parait toucher au terme de cette longue évolution, lorsque Louis XIV est devenu le maître absolu de son royaume et quand les traités de Westphalie, en lui donnant l'Alsace, assurent la sécurité de notre territoire.

Presque au même moment l'Angleterre en 1688 est elle aussi parvenue à poser les fondements de son régime politique. Mais vous n'ignorez pas que l'évolution par laquelle elle y est parvenue ne rappelle en rien celle que nous venons de décrire. Le XVII^e siècle est le moment où les deux pays se trouvent ainsi le plus éloigné l'un de l'autre et il n'est pas surprenant qu'à ce moment aussi commence la longue série des guerres qui par Louis XIV, Louis XV, la Révolution et l'Empire nous amènent jusqu'au seuil du XIX^e siècle.

Mais, quand au XVIII^e siècle les écrivains français se mirent à découvrir les défauts de l'absolutisme, c'est naturellement vers le pays voisin qu'ils tournèrent leurs regards ; c'est ce gouvernement d'un type si différent qu'ils proposèrent en modèle à leurs compatriotes. L'Assemblée Constituante, en votant la Constitution de 1791, voulut établir en France un gouvernement qui rappelait à bien des égards celui qui vivait de l'autre côté de la Manche. Pourquoi ne réussit-elle pas à l'implanter? Pourquoi la France en arrivant à la liberté ne se rapprocha-t-elle point de l'Angleterre?

On l'explique souvent en opposant l'esprit théorique des Français à l'esprit pratique des Anglais. Et il est certain qu'en proclamant les Droits de l'Homme les Constituants de 1789 prétendaient formuler des principes universels. Mais il ne faudrait pas en conclure qu'ils perdaient de vue la réalité. Même la devise célèbre, "Liberté, Egalité, Fraternité," avait dans leurs esprits une signification précise et tout à fait pratique. En parlant de liberté, d'égalité ils énuméraient en eux-mêmes toutes les entraves qu'ils avaient subies, tous les privilèges dont ils avaient souffert. Quant à la Fraternité, ce mot n'exprimait pas une simple manifestation sentimentale. Il correspondait à un mouvement politique précis, celui des Fédérations. Et c'est lui, croyons-nous, qui nous découvre la véritable raison pour laquelle il était impossible d'établir dans la France de la Révolution un régime politique analogue à celui de l'Angleterre.

L'écroulement de la Royauté plaçait les Français devant un péril immense. Elle avait peu à peu accaparé toute l'autorité, concentré à son profit tous les pouvoirs. Les nobles n'étaient nullement

préparés à prendre la direction des affaires. Les fonctionnaires étaient de trop petits personnages pour se maintenir dès que la main qui les protégeait se retirait. Mais il y a plus. En '89 il n'y avait pas en France de républicains. C'est le Roi seul qui incarnait la France, qui en faisait l'unité. Sa chute allait-elle provoquer la dispersion de la famille française ? A ce danger les Français opposèrent le mouvement des Fédérations. Si le Roi avait été le Père du peuple, ses sujets devenus majeurs déclarèrent qu'ils voulaient être des frères. Dès juillet '89 les municipalités qui se formaient de toutes parts commencèrent à se groupér en Fédérations, de plus en plus larges. Et celles-ci, en s'étendant peu à peu à toutes les parties du territoire, finirent par célébrer le 14 juillet 1790 la fête nationale de la Fédération. Quand la Convention proclama la République son premier soin fut de la déclarer " une et indivisible." La Fraternité était donc l'affirmation par une nation libre de son patriotisme. Ainsi dans les débuts de la Révolution c'est la nation elle-même, et non pas seulement une assemblée de théoriciens, qui fonde un état nouveau. Mais elle a tout à créer. L'édifice politique qu'elle construit doit s'élever, pour ainsi dire, sur une table rase. Comment dans ces conditions un régime du type anglais aurait-il pu s'établir ? Votre constitution s'est organisée par une suite de traités et de compromis entre plusieurs pouvoirs dont chacun a sa vie propre et remonte loin dans le passé. Comment organiser la séparation des pouvoirs là où ces pouvoirs n'existent plus ? Il n'est pas du tout surprenant que l'Assemblée Constituante n'y ait pas réussi et qu'elle ne soit parvenue ni à maintenir une Royauté aux attributions limitées, ni à créer des pouvoirs nouveaux capables de se faire obéir.

D'ailleurs la France dut bientôt entrer en lutte contre l'Europe et toute la Révolution s'en trouva déviée. La Convention dut concentrer tous les pouvoirs entre les mains du Comité de Salut Public. Le péril passé elle fit une nouvelle tentative pour instituer dans l'avenir une savante division des pouvoirs. Mais la France ne trouva le repos que sous l'autorité despotique de Napoléon.

En 1814 les hommes qui entreprirent de réorganiser le gouvernement tournèrent une fois encore leurs regards vers le régime dont Montesquieu avait décrit les avantages. La Charte de 1814 établit une monarchie constitutionnelle, partageant l'autorité entre la Couronne, la Chambre des Pairs et la Chambre des Députés. Pendant la première moitié du XIX^e^ siècle la France parut avoir enfin trouvé la stabilité. Mais en 1848 le peuple de Paris renversa cette Monarchie qui, malgré sa durée, était restée singulièrement fragile. En réalité en 1814 les conditions n'étaient pas plus favorables qu'en 1789. La Révolution et l'Empire n'avaient pas disparu sans laisser de traces. Ils nous laissaient un double héritage : l'organisation sociale de la Révolution qui établissait l'égalité et qui était désormais fixée par le Code civil ; l'organisation administrative de Napoléon qui avait étendu sur tout notre territoire les

bras d'une immense machine, recevant de Paris l'impulsion directrice. C'est sur ces bases nouvelles que la Charte essayait de transporter l'organisme politique qui vivait de l'autre côté du Détroit. Mais la machine administrative plaçait maintenant à la disposition de l'Exécutif un instrument formidable d'oppression ; et, avec l'égalité révolutionnaire, il était presque impossible d'empêcher le peuple de le saisir. La tyrannie du peuple pouvait devenir plus lourde que le despotisme du Roi. Plusieurs politiques de cette époque le comprirent parfaitement. Tout leur effort consista à essayer de ressusciter en France d'autres pouvoirs équilibrés. Ils voulurent rétablir une Royauté appuyée non sur la volonté populaire mais sur un droit légitime. A ses côtés ils placèrent une Chambre groupant l'ancienne noblesse et la noblesse de l'Empire et susceptible d'acquérir ainsi un véritable prestige. Quant à la Chambre des députés ils la confisquèrent au profit de cette riche bourgeoisie dont l'évolution économique augmentait rapidement la puissance. Mais toute cette construction restait délicate et fragile. Charles X lui porta un coup funeste en prétendant reconquérir un pouvoir absolu. Une partie de l'ancienne noblesse encouragea sa tentative et partagea son échec. Enfin Louis-Philippe qui, avec plus d'adresse, cherchait aussi à devenir maître de son royaume, s'appliqua dans ce but à transformer les députés en fonctionnaires dociles. Par là il ruina l'autorité de la Chambre qui ne pouvait vivre qu'en élargissant peu à peu de la bourgeoisie au peuple les fondements sur lesquels reposait son pouvoir.

Mais il faut aussi nous souvenir que la France n'a jamais pu poursuivre son développement sans tenir compte du reste de l'Europe. Le gouvernement des Bourbons fut en général pacifique, mais l'héritage des guerres précédentes pesait sur lui. Dans toute l'Europe la Sainte Alliance s'efforçait de comprimer les aspirations nationales et libérales des peuples. Partout ces deux mouvements s'unissaient. Non seulement les Français se souvenaient que la restauration des Bourbons avait été imposée par les armées étrangères, mais encore Napoléon, depuis le retour de l'île d'Elbe, vivait dans leur souvenir comme le fils de la Révolution ; l'Empereur lui-même à Ste. Hélène contribuait à dresser cette figure légendaire. Aussi, Bonapartistes et Républicains se donnaient-ils la main. La monarchie constitutionnelle se trouvait attaquée par la force unie du courant libéral et du courant national. Elle ne pouvait pas prendre racine.

Nous n'insisterons point sur la période de la Seconde République et du Second Empire. Les Français de '48 ne se sont guères préoccupés de l'Angleterre. C'est bien plutôt à l'Amérique qu'ils ont demandé des inspirations. Le régime de '48 qui partage le gouvernement entre un Président et une Assemblée tous deux élus par le peuple rappelle évidemment celui des Etats Unis. Nous pensions alors compléter l'œuvre commencée par la Révolution. Nous oubliions l'héritage du Premier Empire. On s'aperçut trop tard

que les institutions des Etats fédéralistes d'Amérique ne pouvaient s'adapter à la France centralisée et que c'était donner à l'Exécutif, disposant de la grande armée des fonctionnaires napoléoniens, une puissance redoutable. Napoléon III en profita et s'empara du pouvoir.

Le coup d'état de 1851 mit fin à la légende créée par Napoléon Ier. Le Second Empire s'établit en étouffant toute liberté et ne parvint pas ensuite à regagner l'opposition libérale. Les Républicains dans leur lutte contre Napoléon III se rapprochèrent au contraire des partisans de l'ancienne Monarchie. Ils se trouvaient unis quand s'effonda le régime impérial.

Alors ils travaillèrent ensemble à relever le pays et à lui donner les institutions qu'il a conservées jusqu'à nos jours. On peut dire aujourd'hui qu'ils réussirent à créer un organisme beaucoup plus solide que les précédents, qui est mieux adapté aux conditions de notre vie politique et qui me parait cependant avoir très sensiblement rapproché notre démocratie de la vôtre.

L'Assemblée Nationale réunie à Bordeaux en 1871 ne donna une Constitution à la France qu'en 1875. Voici déjà un fait remarquable. Jusqu'alors nous avions assisté à de brusques improvisations. Une révolution accomplie à Paris plaçait le reste de la France devant un fait accompli. Après quoi on mettait rapidement debout un nouveau régime. De 1871 à 1875 on eut au contraire le temps de réflechir, et la Constitution qui sortit de ces réflexions ne fut pas simplement le résultat des travaux d'une assemblée. Elle fut au contraire imposée par la volonté du pays qui peu à peu s'affirma.

Car la majorité des députés était monarchiste ; mais le pays était républicain. Ces députés n'avaient été élus que parce qu'ils se prononçaient pour la paix dans un moment où le leader des républicains, Gambetta, voulait continuer la lutte. Une fois la paix conclue le désaccord apparut. Sans raconter ce conflit retenons ce fait paradoxal mais fort important ; la 3e République fut établie par des royalistes. Ils s'y résignèrent à contre-cœur pour ne pas laisser les républicains l'organiser à leur guise, et le gouvernement tomber dans des mains inexpérimentées. Ils prétendirent continuer eux-mêmes à gouverner dans la forme républicaine et constituer, comme le disait Thiers, " une République sans Républicains." Sans doute ils espéraient ainsi réserver la possibilité d'une restauration dans l'avenir. Je crois qu'à leur insu ils rendirent au contraire un service éminent à la République et qu'en l'obligeant à conserver une partie des institutions de la Monarchie, à faire l'expérience de la vie politique avant de s'émanciper ils donnèrent aux institutions nouvelles une garantié sérieuse de solidité.

Et d'autre part ils leur donnèrent une souplesse que la France n'avait pas encore connue. La Constitution nouvelle ne prétendait pas former un ensemble complet réglementant toute la vie publique. Elle ne contenait que quelques dispositions essentielles. Aussi dans

la suite s'est-elle complètée tout en évoluant. A côté des lois écrites sont venus se placer des réglements de détail, des interprétations, des usages qui ont profondément modifié la portée de nos textes constitutionnels. Ce régime est aujourd'hui vivant d'une vie comparable à celle qui anime les institutions anglaises.

Dans les cinquante-deux années de son existence la Troisième République s'est de plus en plus fortement attachée au régime parlementaire. Pourtant on n'a point perdu de vue le danger d'un régime où la Chambre accaparerait tout le pouvoir. On a réussi à placer à côté d'elles d'autres agents d'autorité et d'influence. La Constitution de 1875 a créé une Seconde Chambre. Elle aussi se recrute au suffrage universel. Sans cela elle n'aurait pu se maintenir. Mais ses membres sont désignés par une élection à deux degrés. Ils restent en fonction pendant neuf ans et l'Assemblée est renouvelée par tiers tous les trois ans. Ces dispositions ont suffi à donner au Sénat français une vie propre, un esprit particulier. Après bien des discussions on doit constater qu'il a réussi à exercer une sérieuse influence sans exposer le pays à des conflits dangereux.

Pendant cette même période la Présidence de la République a grandement évolué. A l'origine le Président était le vrai chef du gouvernement. Aujourd'hui élevé au-dessus des luttes politiques il parait n'exercer dans l'intervalle des crises ministérielles qu'une présidence honorifique et ne disposer que d'une influence morale. C'est le Président du Conseil qui occupe le premier plan de la scène parce que c'est sur lui que s'exerce le contrôle parlementaire. Mais on sait combien ce contrôle est parfois envahissant. L'instabilité ministérielle qui en résulte fait un contraste frappant avec la durée prolongée des ministères anglais. On a peut être exagéré cette instabilité. La Troisième République a connu des Ministères qui surent conquérir une réelle autorité et accomplir une œuvre durable. Quoiqu'il en soit il est significatif de constater combien est répandu le désir d'assurer au Pouvoir Exécutif une plus large liberté d'action. De nombreuses voix se sont élevées récemment pour proposer de choisir les ministres en dehors du Parlement, et même de les placer dans l'unique dépendance du Président de la République, qui recevrait des pouvoirs analogues à ceux du Président des Etats Unis. Mais ces projets, après avoir gagné beaucoup d'adeptes, sont aujourd'hui presque abandonnés. L'histoire de la Guerre mieux connue a montré les services rendus par le Parlement à l'œuvre de la Défense. Par ailleurs les dernières années ont révélé que le système américain avait aussi de graves inconvénients. Il est donc peu probable que les Français entreprennent de bouleverser en ce sens leurs lois constitutionnelles. Mais ces lois mêmes, nous l'avons vu, accordent au Président de la République de multiples pouvoirs ; entre autres celui de dissoudre la Chambre d'accord avec le Sénat. Si l'évolution de l'opinion l'avait amené à ne plus en faire usage, rien n'empêche qu'une évolution contraire ne l'entraine à s'en prévaloir de nouveau. En tout cas l'opinion a clairement indiqué

qu'elle comprenait l'importance de notre haute magistrature, qu'elle protestait contre son effacement. Sous sa pression des hommes de premier plan ont été appelés à l'exercer et ont pu exercer une action qui, sans paraître au grand jour, n'en est pas moins considérable.

Quand au rôle du Ministère, ce n'est plus dans le sens américain, c'est bien plutôt dans le sens anglais que s'oriente notre évolution. On reconnait que le Président du Conseil doit être le chef de la majorité parlementaire, et que, pour affermir son autorité, c'est une plus forte organisation des partis qu'il convient d'obtenir. Par quels moyens ? En Angleterre aussi on sait combien le problème est difficile. La guerre en brisant les cadres des anciens partis n'a certes pas contribué à le résoudre. On peut seulement observer ici que les Français ne prétendaient pas l'aborder de front, mais que la réforme électorale, si passionément discutée en 1914, leur paraissait ouvrir la seule voie qui permit de s'en approcher.

En outre comment méconnaître que pendant cette période le pays lui-même s'est transformé. Les conditions premières qui rendaient si difficiles d'établire en France un régime de pouvoirs équilibrés sont aujourd'hui changées. Tandis que la Révolution avait laissé derrière elle une poussière d'individus égaux et souverains, nous assistons à la formation de plus en plus rapide d'associations de toutes formes. D'autre part la forte machine administrative de Napoléon a déjà subi quelques atteintes. Et des mesures de décentralisation plus larges, d'autonomie administrative sont à l'ordre du jour. De telles transformations réagiront à leur tour sur notre organisation politique.

Mais pour que ces reformes puissent se réaliser il faudrait naturellement que la Troisième République n'ait plus à se préoccuper à chaque instant de défendre ses frontières menacées. Jusqu'à maintenant elle n'a certes pas été plus favorisée que les régimes qui l'avaient précédé. Qu'il nous suffise donc de constater le point où elle est parvenue. Depuis qu'elle s'est detáchée de la Monarchie absolue la France a recherché un régime de pouvoirs équilibrés rappelant celui qui se prétait si bien à l'expansion de votre vie politique. Mais l'héritage de son passé et les crises extérieures ont rendu pendant longtemps impossible de l'établir. Le régime actuel, formé dans des conditions exceptionnelles, en profitant des expériences précédentes, est apparu à l'heure où cela était devenu possible. Et il s'est fortifié en durant. Il présente avec le régime anglais de nombreux points de comparaison ; et des problèmes analogues se poseront sans doute dans les deux pays. Chacun s'éfforcera de les résoudre avec le tempérament qu'il hérite de son passé. Mais cela même peut rendre d'autant plus instructif le travail d'observations réciproques auquel je voudrais contribuer.

International Comparisons of Productive Efficiency in Industry and Agriculture[1]

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Summary.—Survey of the tests which have been used (*a*) in comparing British and Foreign agriculture, by Sir Thomas Middleton, and other writers; (*b*) in contrasting the position of the cotton industry in different countries, by Schulze-Gaeverniez, Aftalion, Copeland, and others; (*c*) in comparing British and American industry by means of the Census of Manufactures and the Census of Production. Difficulties involved in employing these measures to gauge the relative position of an industry in different countries, or to judge of the varying efficiency of the factors of production in each case. The influence of industrial and agrarian policy, the scale of production and other causes upon the relative position of an industry in different countries.

A considerable number of studies have been undertaken in recent years which have had as their aim some form of comparison between the conditions of production in different countries: the most common form of investigation is to compare the position of an industry in two or more countries with a view to reaching conclusions upon the relative efficiency of the employment of the factors of production, and to suggest causes for any differences in efficiency, meaning by that the ratio of work done to cost. Typical instances of such comparisons are to be found in the contrast drawn between British agriculture and German agriculture by Sir Thomas Middleton, in his Report upon the Recent Development of German Agriculture in 1917; in the study of the relative position of the U.S.A. cotton manufacturing industry, by Dr. Melvin Copeland, of Harvard, by means of an international comparison of geographical factors, technical methods, labour conditions, and industrial and commercial organization; or in Vol. I of *Work and Wages*, by Sir Sidney J. Chapman, dealing with British industry and foreign competition. Nor is it difficult to find the reasons for the growing prevalence of these inquiries; there is (1) the influence of the keener competition for leadership in industry and agriculture, the characteristics of which are sketched out by Dr. Marshall in the first section of his book on industry and trade, and the obvious challenge of the U.S.A. and Germany to Britain's leadership after 1880; (2) the movement towards the construction of more complex tariff systems with elaborate classifications and a variety of rates, led often to direct comparisons of costs of production of commodities

[1] Paper read before Section F of the British Association, at the Hull meeting, September, 1922.

in different countries, especially where, as in France, some attempt was made to adjust the tariff duties so that the rate levied was equal to the difference between the French cost of production and the cost of production of her chief competitor in the French market. (3) Other causes of a more general and less specific character might be mentioned, the growing closeness of connection between industries with an international organization and the interest in the standard of living of the working classes in the leading industrial countries, but the first two are of special note because they tinge much of the literature of the subject with a propagandist element.

In surveying these investigations, the questions which at once arise are (1) what tests or standards can be most suitably employed to contrast the relative position of industry or of agriculture in two countries; (2) the limitations upon the value of such tests and the difficulties which a good standard ought, if possible, to meet.

The two occupations, agriculture, and cotton spinning and manufacturing, have been taken to illustrate the points at issue; agriculture serves to bring out in an emphatic form most of the difficulties of comparison; whereas the cotton industry, with its widespread standardization, has the advantage of reducing these to a minimum. Agriculture may be considered first, and Sir Thomas Middleton's Report may be taken for examination. It is a careful and able account of the recent development of German agriculture, together with certain statistical comparisons with British agriculture. Upon his examination of figures relating to production, he made the following widely quoted statements (p. 6 of Report). On each 100 acres of cultivated land (arable and grass land):

1. The British farmer feeds 45 to 50 persons; the German farmer feeds from 70 to 75 persons.
2. The British farmer grows 15 tons of corn; the German farmer 33 tons.
3. The British farmer grows 11 tons of potatoes; the German farmer 55 tons.
4. The British farmer produces 4 tons of meat; the German farmer $4\frac{1}{4}$ tons.
5. The British farmer produces $17\frac{1}{2}$ tons of milk; the German farmer produces 28 tons.
6. The British farmer produces a negligible quantity of sugar; the German farmer produces $2\frac{3}{4}$ tons.

He points out that if the test of food production be taken, the position of British agriculture is not satisfactory. His general comparisons are as follows:

1. The yields of certain crops per acre per annum, assuming that the conditions of soil and climate are on the average the same in both countries.
2. The respective numbers of live stock and of meat and milk production per 100 acres.

3. The proportion of homegrown foodstuffs to total consumption.
4. The average size of farms and tenure.
5. The proportions of cultivated land and the methods of cropping.
6. The labour employed per 100 acres, and wage levels.

Sir Thomas Middleton also deals with the organization of agriculture in the credit system, co-operative association, educational facilities, tariff policy, and the influence of the agrarian party, technical methods, especially the use of manures, and the position of the beet sugar industry, the potato crop, and the related industries.

With this somewhat summary description of the investigation, its method may now be commented upon in the following respects :

1. It adopts the test of total food production as a standard of comparison, and it uses the acre or 100 acre unit. It hardly requires to be pointed out that output, irrespective of the costs of the factors of production involved, is not a standard which would be accepted in any other industry as a basis of contrast, since it is obvious that the difference may have been due to specially heavy applications of labour and capital to the land factor, leaving out of account differences in natural resources. In fact, by the figures given in Sir Thomas Middleton's Report for labour employed, it appears, as both Mr. Hawtrey and Mr. Ashby have pointed out, that a comparison to the advantage of British farming may be made by altering the unit to output per person employed in agriculture. If this unit, which has become familiar by its use in the Census of Production of 1907, is taken, it gives, roughly, an output per person employed twice as great in British agriculture as that in German agriculture, and if a unit of capital equipment could be devised and data were available, it might give a third different result.

2. The adoption of maximum food production as an aim of agricultural effort brings out, however, this interesting issue that the policy of an industry may be directed by differing ideals, and these must be taken into account in comparisons. Agriculture is of special note, because of the variety of these aims and of the attempts to mould agricultural policy in different directions. These aims have been classified by Sir Henry Rew into (1) the desire to secure the maximum quantity of food from the land ; (2) the wish to maintain the maximum number of persons on the land as the source whence the whole nation derives its vigour ; (3) the desire to produce a given output at the minimum cost on the part of the farmer, often called the profit motive. It is obvious that a nation which had a settled policy directed towards the development of food production and the intense application of labour to the land could hardly be safely compared with a country whose policy left its agriculture free to find its level among other

industries and to attract its capital, management, and labour from the same general stores as other industries.

Turning from the broad question of the aim and policy of the industry to the question of the units of comparison, Sir Thomas Middleton may be again quoted to show his attitude to the present position of British agriculture from other standpoints. "If it be agreed," he states, "that our claim that British farming is the best, means, that at the present time we can show very fine cultivation and a high yield per acre of certain crops, that we can produce the best specimens of a large assortment of breeds of live stock and secure for them higher prices than any other country, and that the ordinary machines and implements which we can employ are, as a rule, better constructed than those used by farmers in other countries, then British farming undoubtedly still takes a very high place and is probably second to none" (p. 5). Again (on p. 48): "From the actual processes of German husbandry, there is relatively little to learn. In many parts of Britain the tillage of the soil and the management of stock are as good as anywhere in Germany." And on p. 42: "The difference in production is mainly due to the circumstances that in Britain more than two-thirds of the cultivated land is now in grass, while in Germany less than one-third of the cultivated land is in grass."

These statements seem to suggest that Sir Thomas Middleton himself is prepared to agree that he might arrive at a different result if he had made a comparison of technical methods, management, and quality of product from a purely business standpoint; it is characteristic of all agricultural writers that they make little attempt to compare the business results of agriculture in different countries; this arises in great part from the economic characteristics of agriculture and the lack of data, but it seriously limits the value of most of the contrasts which are drawn.

Comparisons based upon a unit of a single factor of production can hardly be expected to throw much light upon the effectiveness of the application of all the factors, nor is there any satisfactory method of dealing with the combination of the factors of production except through cost of production. The Corn Production Act of 1917, and the policy of guaranteed prices for certain crops, raised this whole question in an acute form and showed that little systematic and authoritative information upon agricultural costs was available. This is, perhaps, why agricultural contrasts, while they are full of interest, seem to lack grip upon the situation and always seem to men engaged in other industries to stop short of the critical issues. Agricultural production covers a large number of different forms of output, cereal farming, stock raising, mixed farming, dairying, with specialities in poultry and pig-farming; it is carried on under highly varied conditions of soil and climate; the methods of production may vary from group to group and the scale of production shows wide variation, both by product and by locality. Even if

representative forms of production be taken, such as wheat, it is certainly difficult to arrive at any idea of cost of production on a typical farm, because so many products are either jointly supplied or raised in association with other crops in rotation, and in the absence of any figures on this subject it is difficult to deal with cost of labour and the relative efficiency of the factors of production.

A brief account may now be given of the forms of comparison which have been used in contrasting the position of the cotton industry in different countries. First comes the geographical distribution of the industry, with special reference to magnitude and localization; special attention is usually given to the causes of localization. There follows the comparison of the technique of production in its influence upon the cost of production in the industry; this involves a description of the raw material employed in production; the effectiveness of the methods by which it is obtained at the place of manufacture; the supply of machinery both for spinning and weaving; the capital cost and the rate of renewal of equipment; capital expenditure on land and buildings; insurance rates; cost of motive power; the proportion of labour and capital; the training and recruiting of business management; the scale of production and the degree of specialization in output.

In testing the working conditions and industrial organization of an industry there is the question of the cost of the supply of raw material where transport charges are a significant influence upon price and the size of the stocks which spinners and weavers consider it necessary to have by them to carry on their business, since this item would influence the amount of floating capital involved. In the case of equipment the price of machinery influences the capital cost and the rapidity with which it is renewed. There is also the attitude of the management to new ideas. The capital expenditure upon land and buildings requires to be noted in one or two directions; land will vary in price and the buildings may vary in elaboration and cost; motive power varies in cost with the price of coal and with the employment of electrical and hydraulic power. A common comparison for working conditions is to take the proportion of labour to a fixed number of machines representative of the different processes involved. This is meant to give a rough indication of labour efficiency, provided that the machines are run at the same speeds; these variations in the proportions of labour and capital may be due to different methods of production, the character of the articles produced, the size of the firms, and the different degrees of specialization; and also to causes which depend upon the degree of skill, industrial capacity, and the standard of living of the operative class.

The first group of causes is beyond the control of the workpeople. In spinning many firms may find it necessary to keep a repairing shop for their equipment; and this raises both capital and labour expenditure; one industry may use a superior quality of raw material

to produce the same result as another industry, or it may make more waste. The degree of specialism present in the industry affects the amount of mechanical and general readjustment which takes place, there are changes in the work of the operative to allow for, losses or gains in time and continuity ; the presence or absence of mass production, the acceptance of varieties of small orders—all affect output and organization. So that labour cost per unit of output is affected by many considerations in addition to the efficiency of the workers concerned. A difference in the proportions of capital, equipment and labour may be due to the differences in the policy of the industry, since employers in one country may find that it is profitable to use more labour and less capital owing to the influence of relative supplies of these agents ; or to save on labour and spend on machinery, or again, to employ small amounts of high-class labour instead of larger amounts of average quality ; it may be caused by different degrees of specialism and development in production, and this point would depend on the character of the output, whether it consisted of standard goods or specialities. At the danger of unduly labouring this point, it may be noted that it brings out certain of the limitations and weaknesses of the method of comparison by output per unit of labour ; as often made, statements as to the output per person in industry might convey the meaning that labour was the only factor involved, and that variations in output might be directly attributable to varying efficiency in labour, but this is rarely an approximation to the actual position in an industry where the other factors play a very appreciable part in determining total output.

A further contrast is between forms of management in two countries, whether the firms are owned and directed by individuals, partnerships, private companies or joint-stock concerns. This is of significance, as it may reflect itself in the levels of profits and may be caused in part by the character of the work, the degree of variation of the output, the requirement of detailed management and supervision, the methods of financing the industry; the standard of education and training among employers and managers, and the circle from which they are recruited has a bearing upon the same issue.

From this summary, although it is somewhat inadequate in character, it can be seen that comparison in the cotton industry, as shown in the work of Schulze-Gaevernitz, Sir Sidney Chapman, Dr. Copeland, Professor Aftalion, and others, concentrates mainly upon the elements in the cost of production ; it attempts to contrast the position of all the factors of production in each country by noting their influence upon supply price. The method has the advantage of focusing attention where business men would naturally expect to find it directed, since all factors are represented in that unit in the proportion which employers consider most effective for purposes of production. The centering of attention in cost of production has

this preliminary difficulty, however, that it may be immediately asked what cost of production is being considered and what volume of production; the suggestion of investigators is that the cost of production is that of a representative firm as defined by Marshall, or the firm of typical magnitude as defined by Chapman.

After giving a parallel between the growth and decay of trees and businesses, Marshall, in the last chapter of Book IV of his *Principles*, points out that "in analysing the normal cost of producing a commodity, relatively to a given aggregate volume of production, we have to study the expenses of a representative producer for that aggregate volume." "On the one hand, we shall not want to select some new producer, just struggling into business, who works under many disadvantages, and has to be content for a time with little or no profits, but who is satisfied with the fact that he is establishing a connection and taking the first steps towards building up a successful business; nor, on the other hand, shall we want to take a firm which, by exceptionally long-sustained ability and good fortune, has got together a vast business . . ." and so on. "But our representative firm must be one which has had a fairly long life, and fair start, which is managed with normal ability, and which has normal access to the economies, external and internal, which belong to that aggregate volume of production, account being taken of the class of goods produced, the conditions of marketing them, and the economic environment generally."

Sir Sidney Chapman makes the same point in the following way, after a statistical inquiry into the typical size of businesses, in both spinning and weaving, in a number of countries. "In each industry or branch of an industry firms tend to attain a typical magnitude." It is the size of the business for the time being which allows the firms to benefit to the greatest extent by the internal and external organization of the trade, to make the best use of their economic environment. That magnitude is a function of many variables: (1) the degree of complexity of internal organization; (2) the character of the output; (3) the relative scarcity of the agents of production, labour, capital, and organization; (4) the nature of the marketing work; (5) the variability of demand; (6) the rapidity of changes in technical methods; (7) the possibility of massive production and routine management. There are undoubtedly difficulties in fixing this conception of a typical firm since one industry may reveal three or four normal types through the variation in any of the above-named factors, and the cost of production test may cover up the different degrees of specialism in different countries, but it brings together most of those costs which are the start of any careful examination of the efficiency of the employment of the factors of production.

Professor Aftalion has made an interesting examination along these lines of two French industries, the "Linen" and the "Cotton," in his study of *The Crisis in the Linen Industry and the Victorious Competition of the Cotton Industry* (1904). He describes the sub-

stitutional power of cotton goods with their low costs of fabrication ; although the raw material of the linen industry was commonly cheaper than the raw material of the cotton industry, yet the triumph of technique is so much more striking in the cotton trade that the total expenses of production are lower. He works this out by comparing the different elements in the cost of production of normal firms ; the part played by capital in linen spinning and weaving, the relative costs of first establishment and the relative production per spindle and per loom ; the part played by labour, the lower wages of the linen workers, but the higher labour cost. Thus by concentration upon these elements in cost he contrives to give a picture of the industry from the business standpoint which has the virtue of being clear and covering all important issues.

There remains to be mentioned the method of the British Census of Production and of the American Census of Manufactures ; these important investigations were, of course, undertaken to provide information concerning industry from many different standpoints, and it is only in so far as the conception of net output of an industry may be used in comparisons that it is necessary to deal with the method. The net output of an industry in the British Census of Production was meant to express completely, and without duplication, the total amount by which the value (at works) of the products of the industry or the group, taken as a whole, exceeded (at works) the cost of the materials purchased from outside, i.e., it represented the value added to the materials in the course of manufacture. This sum constitutes for any industry the fund from which wages, salaries, royalties, rates, taxes, depreciation, advertisement and sales expenses, and all other similar charges have to be defrayed, as well as profits. One method of using this data was to take the net output per person employed in different industries, and in so far as labour is an important factor the method as already mentioned may be a rough indication that conditions are likely to be better where output is high, but a high net output per head might be due to heavy capital expenditure, to the use of patents, to heavy advertising, or to the magnitude of establishment charges, and to a variety of other causes (speculative purchase of raw material), and as Mr. Flux points out, the average net output per head may give an entirely fictitious representation of the condition of a trade, since few industries are so simple in structure that the same conditions apply with little variation throughout ; many would require to be divided into groups. It may, however, be observed that net output per head in an industry casts little light upon the efficiency of the employment of the factors of production, because the data, although it covers the elements of cost of production, does not permit them to be grouped, as far as I can see, to show the normal expenses of production of a given volume of output.

This tentative survey of the methods of comparing industries leads one to the view that comparisons which concentrate upon such

data as is available, concerning the expenses of production per unit of output of representative or typical firms, are likely to be of most value from the standpoint of contrasting the efficiency of the employment of the factors of production. It is, of course, true that the object or aim of an industry may be so modified that business efficiency in the narrow sense is not looked for, and other tests, such as total production per unit of area or per unit of a single factor, may be substituted on social grounds, but even then one cannot help but suggest that the starting point for any policy of guaranteed price, for any deliberate policy of making a divergence between what Professor Pigou would call social marginal net products and trade marginal net products, would be the cost of production, since that would give some guide to the cost to be paid for a change which did not leave an industry free to find its own level. But it must be admitted that unless there is a certain degree of publicity concerning the methods of the industry and some serious attempt to employ a costings system, it is difficult to give an adequate account from this point of view.

This subject has been confined to simple comparisons which cover a narrow field, namely, the contrasting of the conditions of production of an industry in two different countries; the broader question of comparing the investment of resources in different industries, to see how far the real costs of production diverge, to find how far each country is devoting itself to those occupations which afford it the highest available fund for wages, interest, rent, and profits, has not been touched upon. The other point is that, if the theory of international trade, as stated by Professor Bastable, be accepted, the comparison of the cost of production of an industry in two countries can be seen to be limited in value, since the problem comes to be whether the labour, capital, and other resources engaged in an industry in one country could be devoted to other work in that country which would yield a remuneration greater than that obtained in their present employment, on the assumption that relative immobility of labour and capital are postulated.

The Law of Bankers' Commercial Credits

By Professor H. C. Gutteridge.

No more obscure or difficult problem has arisen in connection with the Law of Banking during the post-war period than that of defining the respective rights and liabilities of the parties concerned in the intricate process of financing foreign trade by means of Bankers' Commercial Credits. The question is not a new one. It is true that these credits are by no means an innovation, but the peculiar trade conditions engendered by the war have greatly extended the use and scope of banking facilities in this form. Commerce has been carried on in new channels, and not always with persons of unblemished personal repute ; and, moreover, exporters of goods have been much embarrassed by violent fluctuations in rates of exchange. For these reasons there has been a marked disinclination on the part of exporters to rely on the credit of individual buyers, and an increased tendency on their part to stipulate in the contract of sale for an undertaking to pay to be given by a banker, and preferably one domiciled in the country of export.[1]

Although, in practice, the banker's undertaking assumes different forms, it is always based on a promise given by the banker to accept or pay bills of exchange drawn by the exporter, provided that security is furnished for the advance in the shape of bills of lading representing the goods to be exported. A transaction of this nature must be distinguished from the discounting of documentary bills by exchange houses, and also from the case of an advance made to an importer by a banker on the security of the pledge of a bill of lading for the imported goods. In neither of these cases is there an antecedent agreement between the exporter and the importer making the intervention of the banker a term of the contract of sale, and it is this agreement which is the salient feature of a banker's commercial credit.

The machinery employed for the purpose of securing the undertaking of a banker to act as paymaster varies in point of detail, but, broadly speaking, it usually takes one or other of two forms, namely, either that of the so-called revocable or unconfirmed credit, or that of an irrevocable or confirmed credit. The latter is the form most in favour with exporters. A confirmed credit sometimes assumes the form of a so-called "revolving credit." These revolving credits have as yet not been defined judicially, and it would seem

[1] *The Kronprinsessan Margareta* (1921), A.C., per Lord Sumner, at p. 510.

that there is some difference of opinion in banking circles as to the precise meaning of the term " revolving." A revolving credit formed the subject matter of an action which was tried recently before Mr. Justice Bailhache in the Commercial Court,[1] but as the plaintiff failed to establish his case on the facts it was not necessary for the question of the legal effect of a revolving credit to be determined. The learned judge intimated that he had prepared a definition of the term " revolving," but that after considering the evidence he thought it advisable to withhold the definition. The evidence in this case will be referred to hereafter.

THE COURSE OF BUSINESS

This is not the occasion for a discussion of the technicalities of these transactions from the banking point of view; but, for the sake of clearness it is desirable to indicate in outline the procedure which would normally be followed in establishing and operating credits of this nature.

The transaction presupposes the case of an importer whose credit in his own country may be excellent, but who may not be sufficiently well known in the country of export to enable him to rely solely on the strength of his reputation for solvency and honest dealing. In such a case he will have to find a paymaster, who will be acceptable to the exporter. The importer will, therefore, approach a banker and request him to undertake this liability, promising to pledge the goods to him by way of security, and agreeing to pay him the usual commission for his services. The credit when issued by the banker takes the form of a document addressed to the exporter, informing the latter that his drafts on the banker will be honoured provided that they are accompanied by the necessary shipping documents, which must be in such a form that they can easily be disposed of by the banker, if he wishes to realize his security. On receipt of this document the exporter ships the goods and insures them, obtaining a bill of lading made out to his order, or that of the bankers, and also a policy of insurance. He then draws on the banker for the price of the goods. The exporter may sell the draft, together with the shipping documents, to an exchange house which will purchase them on the faith of the banker's undertaking given in the letter of credit, or he may dispose of it to his own banker or obtain from the latter an advance secured by the bill. In either event the exporter gains the advantage of receiving payment for his goods without delay. It may be observed parenthetically that he still continues to be liable on the bill as drawer, but in the vast majority of cases this is not a risk of a serious character. A suggestion has been made that there is no recourse to the drawer where a bill is drawn under a banker's credit, but it is difficult to see how this contention could be upheld in view of the fact that the drawer

[1] Nordskog *v.* National Bank (1922), 10 Lloyds List Reports, 652.

definitely becomes the party secondarily liable for payment of the bill on presentment, and there is, as a rule, nothing incidental to the transactions under discussion which would relieve the drawer from this liability.[1] The only method by which recourse to the drawer can be negatived is by inserting in the letter of credit a statement that the bills are deemed to be drawn " without recourse " to the drawer. In this event, provided that the bill when drawn refers on the face of it to the letter of credit, the drawer will escape liability.

Now, assuming that the importer's banker has accepted or paid the draft and detached the shipping documents, he is in the position of having made an advance on the security of the pledge to him of the shipping documents, and it is at this stage that the transaction becomes somewhat complicated. The following states of fact may have to be dealt with. In the first place, the goods may have been sold by the importer before arrival, and delivery may have to be made to the purchaser. Secondly, the goods may arrive before they have been sold. In the former case the banker may, of course, surrender the shipping documents to the purchaser against payment of the price, but in practice it is frequently found to be desirable, in the interests of the importer, that the goods should be delivered by him, and not by the banker. In such a case the banker may allow the importer to have the bill of lading, and to take delivery of the goods from the ship, on his signing a Letter of Lien or Hypothecation which makes him trustee for the banker, both of the shipping documents and the goods which they represent. If the goods are unsold on arrival they may be stored in the name of the banker, in which case they cannot be handed over to a purchaser, except under a delivery order from the banker ; or, as sometimes happens, the banker may permit the importer to have possession of the goods on giving a letter of lien or hypothecation as already mentioned. It may be observed in this connection that it is often found to be advisable from the business point of view to allow the importer to handle the goods, as he is generally the person best qualified to dispose of them to advantage, and, further, this course is also best calculated to avoid any injury to his commercial reputation.

The above is, of course, a somewhat imperfect outline of the course of business, but it is hoped that it may serve the purpose of giving a broad indication of the part played by the various parties to the transaction, and so furnish the necessary background for a discussion of their legal position.[2] The questions which arise in practice in relation to these credits are the following :

[1] Bills of Exchange Act, 1882, s. 55 1 (*a*).

[2] The course of business is described in detail in Mr. Spalding's work on *Banker's Credits*, to which reference should be made for this purpose. For the sake of simplicity the special forms of credit, such as the " Omnibus " and the " Extended " credits, are not dealt with here.

I.—The Nature and Effect of the Legal Relationship between the Banker and the Beneficiary under the Credit.

The part which is played by the law in making the credit an effective instrument of commerce consists in the establishment of privity of contract between the banker and the person for whose benefit the credit has been opened on the instructions of the customer, that is to say, between the banker and the beneficiary, as he is generally termed. As soon as the banker has communicated the opening of the credit to the beneficiary, a contract comes into existence by which the banker undertakes to accept or pay drafts drawn on him by the beneficiary, provided that such drafts are in compliance with the terms of the credit and are accompanied by the appropriate shipping documents. This undertaking also enures for the benefit of third parties to whom bills are negotiated in reliance on the credit. The letter of credit is a general invitation issued by the banker to all persons to whom it is shown to purchase bills which are drawn in accordance with its terms, and any person who accepts and acts on this invitation obtains a valid and binding legal contract with the banker, which he can enforce against the latter and which is not affected by any cross claims there may be as between the beneficiary and the banker.[1]

It may be observed here that it is of the utmost importance that any conditions laid down in the letter of credit should be adhered to strictly by the beneficiary ; for otherwise the banker will escape liability. For instance, if it is a condition precedent to the drawing of bills by the beneficiary, that the latter should already have bought and paid for produce to be exported, the banker can decline to accept bills which have been drawn in breach of this condition, even as against third parties to whom the bills have been negotiated, provided that the latter had notice of the conditions in the letter of credit.[2]

But leaving on one side any question of compliance with the terms of the credit, the liability of the banker will depend on the form which the credit assumes. It has already been observed that the document by which the banker notifies the beneficiary that the latter may draw upon him assumes, speaking generally, one of two forms. It may, in the first place, be a so-called revocable or unconfirmed credit, which is merely an advice to the beneficiary that the credit has been opened in his favour, and which notifies him that the credit is liable to be cancelled at any time without his consent. Or it may be what is known as an irrevocable or confirmed credit, which is an unqualified undertaking by the banker to honour the credit, subject only to limitations as to the amount and the period of time for which it is to be available. The distinction

[1] *Re* Agra *v.* Masterman's Bank (1867), 2 Ch. 391 ; Chartered Bank of India *v.* Macfadyen (1895), 1 Com. Cases, 1.

[2] Chartered Bank of India *v.* Macfadyen and Co. (1895), 1 Com. Cases, p. 1 ; and see also Union Bank of Canada *v.* Cole (1877), 47 L.J.C.P., 100.

between the two forms of credit is fundamental, and it is consequently necessary to deal with them separately.

The Unconfirmed Credit.—A credit of this nature is so termed because the document which establishes it contains a notification to the beneficiary that the right of cancellation is reserved. A person acting in reliance on a credit of this kind has therefore ample notice that the credit may be withdrawn at any time, and the matter does not rest there, because it has been held that where a credit takes this form the banker issuing it is at liberty to cancel it when he pleases, and is under no legal duty to give notice of the cancellation to the beneficiary, so that an exporter shipping goods on the faith of the credit may subsequently find himself in a quandary owing to the fact that the credit has been cancelled without his knowledge. A prudent man of business receiving a credit in this form should, therefore, always make inquiry of the issuing banker before any goods are shipped. It is believed that it is the practice of some bankers to give notice of the intention to cancel the credit; but it would not be safe to rely on this practice being followed in any individual case, as such notice is merely given by bankers as an act of courtesy, and no liability is imposed on them where, by reason of some oversight or otherwise, the notice is not given.

The legal position in the case of an unconfirmed credit is well illustrated by the decision in the case of The Cape Asbestos Co. Ltd. *v.* Lloyds Bank Ltd.[1] In that case the facts were as follows: A credit was issued by Lloyds Bank in favour of the company in the following terms:

> "Gentlemen.—We beg to inform you that we have received advice by telegraph from the Banque de l'Est, Warsaw, of the issue of a credit in your favour for £1,620 . . . on account of Stubicki and Felsze, Warsaw . . . to be availed of by your draft on us at sight, accompanied by invoice, bill of lading in complete set to order of Lloyds Bank Ltd., covering shipment of 30 tons asbestos sheets consigned to Stubicki and Felsze, Warsaw, per s.s. ——. *This is merely an advice of the opening of the above-mentioned credit and is not a confirmation of the same.*"

During the currency of this credit, viz., on August 4th, 1920, the bank received instructions by cable to the effect that the credit was cancelled. They did not inform the company of the cancellation, and on September 30th, 1920, the latter shipped a consignment of asbestos and presented a sight draft together with the shipping documents for the goods to the bank. Payment was refused, and the company brought the action against the bank, basing their claim on an allegation that it was the duty of the bank in the circumstances to give reasonable notice of the cancellation of the credit, and that as the bank had failed to do so the company were

[1] (1921) W.N., 274. For another case of an unconfirmed credit see Panoutsos *v.* Raymond Hadley (1917), 2 K.B., 473.

entitled to damages. This contention was rejected by Mr. Justice Bailhache, who held that, as the credit was revocable in form, there was no legal obligation on the part of the bank to give any notice to the beneficiary. It was admitted by the bank, in the course of the case, that its practice was to give notice in such cases, but solely as a matter of grace, and the learned judge, whilst commending the practice as reasonable and businesslike, pointed out that it had no bearing on the question of the liability in law of the bank. It would seem, therefore, that the position of the beneficiary under this form of credit is not a very strong one, as the credit can at any time be withdrawn without any notice to him.

So far we have been dealing with the case where the credit states on the face of it that it is liable to be withdrawn. The document establishing the credit may, however, be silent as to this, i.e., it may not state whether the credit is revocable or not. It is doubtful whether such a credit can be revoked, but in any case it could only be revoked after reasonable notice, and, moreover, only without prejudice to the rights of holders for value of bills drawn under the credit, who had no notice of the cancellation of the credit at the time the bills were negotiated to them. So long as a letter of credit in this form is outstanding in the hands of the beneficiary it may be used by the latter to secure the discounting of bills drawn under it after cancellation, and the banker will be liable for value of such bills to holders who are unaware that the credit has been revoked. A banker who has issued a credit in this form and who wishes to revoke it should, in theory, protect himself by demanding delivery up of the letter of credit, but the question is probably very largely academic in character, as credits of this type are rarely met with at the present time, and it is always open to the banker to refuse to issue a credit without some guarantee against loss, which may take the form of a deposit with the issuing banker, either of cash or securities, sufficient to cover the amount for which the credit is issued. Further, it could be contended with some force that in view of the well-known distinction between " unconfirmed " and " confirmed " credits, every person acting on a credit, which is not in terms a " confirmed " credit, takes the risk of a cancellation of the credit, though it is doubtful whether this argument would prevail, as the correct view would seem to be that if the banker desires to reserve a right to withdraw the credit he must make this clear on the face of the credit itself.

The Confirmed Credit.—A banker's credit is said to be confirmed or irrevocable when the issuing banker gives a definite undertaking to the beneficiary that all bills drawn in compliance with the terms of the credit will be honoured without qualification, except as to the amount of the credit and as to the period for which it is to remain open.[1]

[1] *Journal of the Institute of Bankers*, Vol. XLI, p. 53. American banking practice distinguishes between a " confirmed " and an " irrevocable " credit. *Ibid*, Vol. XLIII, p. 103.

It is an instrument which differs materially from an unconfirmed credit ; in fact its purpose is not so much to ensure the acceptance or payment of drafts, as to secure the due performance of a contract for the sale of goods. It is important that this distinction should be noted, because it goes to the root of the matter. In the case of an unconfirmed credit all that the banker undertakes to do is to accept or pay drafts and to take up the accompanying shipping documents, so long as the credit is not withdrawn. He does not in any way lend himself to the assurance of the due performance of a contract of sale. The effect of a confirmed credit is, on the other hand, to substitute the issuing banker for the purchaser of goods as the person who undertakes to accept and pay for the goods, and this is an undertaking which is absolute in this sense, namely, that so long as the documents of title to the goods handed to the banker by the beneficiary are in order, the banker must pay quite irrespective of any controversy between the beneficiary and the purchaser as to whether the contract of sale has been duly performed or not.[1]

The result is that the confirmed credit is a commercial instrument of the very greatest value. An exporter holding a credit of this nature is free from anxiety, for if the issuing banker is of unimpeachable repute, the exporter can rest assured that he has a solvent party against whom he can always enforce his rights under the contract of sale, whether he is claiming the price of the goods or seeking to recover damages from the importer for non-acceptance of the goods. On the other hand, the liability incurred by the issuing banker is of a very serious character, as will be seen when we come to examine the rules of law relating to damages which can be recovered from the banker if he fails to perform his part of the contract.

Revolving Credits.—It has already been mentioned that the revolving credit still awaits authoritative definition by a court of law. In a recent case[2] the matter came up for discussion, but was side-tracked as the evidence did not support the contention put forward by the plaintiff that a revolving credit had been opened. Mr. W. W. Paine, Joint General Manager of Lloyds Bank, was, however, called to give evidence as to the meaning of the term "revolving credit," and it may be useful to refer to the material parts of his statement. He defined a revolving credit in this way : "A revolving credit is one for a certain sum which is automatically renewed by putting on at the bottom that which is taken off at the top. If you have a revolving credit for £50,000 open for three months to be operated on by drafts at thirty days' sight, as drafts are drawn they temporarily reduce the amount of the credit below the £50,000. As these drafts run off and are presented and paid

[1] See the remarks of Bankes, L.J., in the case of The Belgian Grain Co. *v.* Cox, 1 Lloyds List Reports, 206.

[2] Nordskog *v.* National Bank (1922), 10 Lloyds List Reports, 652. This case is also interesting as deciding that a manager of the branch of a bank has no apparent authority to open a confirmed credit.

they are added again to the top of the credit and restore it again to the £50,000. That is what is known technically as a revolving credit, and it is automatic in its operation and does not need renewal. The words 'revolving credit' are used inaccurately in regard to a credit which is opened for a certain amount for so many months, e.g., a credit in favour of A to be drawn on at a rate not exceeding £50,000 per month over certain months. It is a credit for a total of £50,000 multiplied by the number of months for which it has been opened and subject to the restriction that you cannot draw more than £50,000 in a month."

Coming from a person of such distinction in the banking world, the above must be accepted as an accurate definition of a revolving credit, and it would appear that there is nothing in such a credit to distinguish it in law from the more usual form of a confirmed credit beyond the fact that it is automatically renewed, though it is possible that in future questions may arise on the construction of letters of credit as to whether they are to be regarded as revolving credits or not.

II.—The Measure of Damages for the Breach by the Banker of the Contract Constituted by a Banker's Commercial Credit.

The next point which calls for consideration is the extent of the liability incurred by the banker, in the event of a wrongful refusal by him to honour drafts drawn in accordance with the terms of the credit. The law relating to this question is by no means clear. In fact it is at the moment undergoing a process of development, and it is therefore not possible to do more than to indicate the stage which has been reached in defining the liability of the banker at the present time. The matter is one of very great difficulty, and it may well be that the solution of this extremely important question is to be found rather in an alteration of the practice of bankers, than in the judicial exposition of the legal incidents attaching to a breach of this particular form of contract.

From the lawyer's point of view the question turns on certain rules of law relating to the measure of damages. Where there is merely a refusal or failure to pay a sum of money (e.g., where a bill of exchange is dishonoured in the ordinary way), only nominal damages can be claimed over and above the amount of the debt itself, together with interest from the date at which payment was due. In other words, beyond the amount of the debt and interest nothing is recoverable, though in theory a nominal amount can also be awarded as compensation for the failure to pay. This rule does not, however, apply to cases where a banker refuses to honour drafts drawn on him under a letter of credit which he has issued. The law does not regard this as being merely a failure to pay a money debt. It treats it as a breach of the contract between the banker and the beneficiary contained in the document establishing

the credit, involving consequences over and above the non-receipt of a sum of money. Consequently, the beneficiary will, in such a case, be entitled to any damages which can reasonably be said to flow from the breach of that contract. The position is well illustrated by the case of Prehn *v.* Royal Bank of Liverpool.[1] In that case it was held that the drawer of bills under a banker's commercial credit, which bills were subsequently dishonoured, was entitled to replace the credit by drawing on another bank, and to charge the banker issuing the original credit with any extra commission payable for the fresh accommodation, and any other expenses necessitated by the establishment of a new credit. The facts in that case were as follows : The Liverpool bank issued a letter of credit to the plaintiffs, who carried on business at Liverpool and Alexandria as grain merchants, by which the bank agreed to accept the drafts of the plaintiff's Alexandria house, on the plaintiffs undertaking to provide funds to meet the bills at maturity, and to remit the shipping documents to the bank as security for the advance. The bank were to receive a commission of ½ per cent. in respect of the accommodation. Bills were accepted by the bank under this credit, and funds to meet them at maturity were duly provided by the plaintiffs. Before the bills fell due the bank stopped payment. The plaintiffs arranged for another Liverpool house to take up the bills at a commission of 2½ per cent., and were also put to expense in protesting the bills and in cabling to Alexandria. The bank did not dispute its liability to pay the amount of the bills, but it was argued on its behalf that damages in respect of the extra commission and cable charges were not recoverable as the claim was in the nature of a money demand. The Court rejected this contention, pointing out that the cause of action was not in respect of the non-payment of a sum of money, but was founded on the breach of the contract contained in the credit to honour the bills as they fell due, and that the cost of obtaining fresh accommodation and of the cables was recoverable, inasmuch as the necessity of opening a new credit and of communicating with Alexandria were reasonable and probable consequences of the breach.

This case—though it is important as establishing the principle that damages are recoverable beyond the amount of the bill and interest in such cases—does not dispose of the question as a whole. It will have been noticed that the drawers of the bills under the credit and the parties at whose instance the credit was issued were, in substance, the same persons. Consequently there could not be any question of a breach of a contract of sale between those parties. The position is, however, different where the beneficiary under the credit (the exporter) and the customer requesting the issue of the credit (the importer) are totally distinct persons. In such a case

[1] (1870) L.R. 5 Ex., 92. See also Larios *v.* Bonany y Gurety, L.R. (1873), 5 P.C., 346.

the beneficiary has a grievance over and above the necessity of finding fresh accommodation because the contract of sale, out of which the credit originated, has not been performed. The question which arises is, therefore, this : Are the damages to be calculated with reference to the loss which the beneficiary has sustained by non-acceptance of the goods which he has sold, or are they to be dealt with solely on the basis that the banker has failed to pay a sum of money due from him under the terms of the credit ? This is a matter as to which the authorities are somewhat conflicting, and which cannot be regarded as settled in the present state of the law. One view is that which was put forward by Lord Justice Bankes in the following words : " The object of letters of credit in this form . . . is to secure payment of the purchase price of the goods or of the actual amount named in a letter of credit in exchange for the particular documents mentioned therein, and one of the objects is to avoid any controversy in reference to the amount of damage and to secure that as against the documents if they are in order the amount of money named in the letter of credit should be paid over."[1]

If this be the correct view the measure of the damages recoverable from the banker in the event of his refusing to honour the credit, is the amount which he should have paid on the shipping documents being tendered to him ; without taking into account the actual loss which the beneficiary has sustained in consequence of the refusal. It is submitted with great respect that this view of the matter is untenable for two reasons. In the first place, it practically involves an order for specific performance of the contract between the banker and the beneficiary, i.e., the beneficiary becomes entitled to force the shipping documents on to the banker in exchange for payment of the invoice price of the goods, and this is a result which would seem to be contrary to the general policy of the law when dealing with transactions of this nature, more especially as it does away with any possibility of the damages being minimized by disposing of the shipping documents in the market. Mr. Justice Rowlatt appears to have appreciated the difficulties involved in the adoption of this view when he drew a distinction in a subsequent case between a refusal to pay in accordance with the credit *simpliciter* and a refusal which was based on an alleged breach by the beneficiary of the contract for the sale of the goods represented by the bill of lading which the bank had declined to take up. He expressed the view that it was only in the latter event that damages analogous to those for a breach of a contract of sale by non-acceptance of the goods could be awarded.[2]

[1] Belgian Grain Co. *v.* Cox (1919), 1 Lloyds List Reports, 256.

[2] Stein *v.* Hambro's Bank(1921), 9 Lloyds List Reports, 507. This case is also reported on appeal in 10 Lloyds List Reports, 529, but the Court expressed no opinion on this point, as their decision on the facts of the case rendered it unnecessary for them to deal with the question of damages,

It is submitted that this view of the matter cannot be supported, but that the correct method of measuring damages, both in the case of an unconfirmed and of a confirmed credit, is to apply the analogy of the measure of damages for the breach of a contract of sale by non-acceptance of the goods. In both cases the position is that the banker has agreed to buy shipping documents if duly tendered to him in accordance with the terms and conditions of the credit. In the case of an unconfirmed credit the banker's liability does not extend beyond this point, and by reserving a right of cancellation he dissociates himself in effect from any responsibility for due performance of the contract of sale between the beneficiary of sale, and the person to whom he has sold the goods. Where the credit is a confirmed credit the banker's liability may be more extensive, because he agrees to take up the shipping documents without qualification, and thus undertakes to ensure due performance by the buyer of the contract for the sale of the goods. This distinction becomes important in two events. In the first place, the banker issuing a confirmed credit must take up the shipping documents and pay the invoice price irrespective of any breach by the seller of the contract of sale, which is a matter to be settled between the seller and the buyer independently of the credit. Where the credit is unconfirmed this is not necessarily the case, because if the banker is notified in time of the failure to perform the contract of sale he can avail himself of his right to cancel the credit. Further, where the contract between the buyer and the seller is one for delivery of the goods by instalments, the banker under an unconfirmed credit is not bound to take up the documents representing all the instalments, but can put an end to his liability whenever he chooses, whereas under a confirmed credit a refusal on his part to accept a bill of lading representing one instalment may amount to a repudiation, and so render him liable in damages for an anticipatory breach of the entire contract. In other words the beneficiary under a confirmed credit may be entitled to treat the refusal of the banker to take up the documents relating to any one instalment as a breach of the whole of the contract contained in the credit, which absolves him from any further performance of the contract and entitles him to sue the banker forthwith for damages based on non-acceptance by the banker of shipping documents representing future instalments, as well as the actual documents which have been rejected.

But subject to these distinctions it is submitted that both in the case of an unconfirmed and of a confirmed credit the position is that, if the banker commits a breach of his contract, the damages will be analogous to those flowing from a breach by a buyer of his contract to accept goods when tendered to him in accordance with the contract of sale. The measure of such damages will *prima facie* be the difference between the amount of the draft accompanying the documents and the market value at the time of the breach, of the goods represented by the documents. It becomes the duty of

the beneficiary to dispose of the goods elsewhere and the liability of the banker is limited to the resulting loss, if any. Any other view of the matter would involve a forced acceptance by the banker of the shipping documents, whether he desired to take them or not, which, as has already been pointed out, is a position inconsistent with the general principles of the law relating to the enforcement of the rights of parties to a business contract such as this.

The decision in the recent case of Urquhart Lindsay and Co. *v.* Eastern Bank[1] supports the views expressed above, the ruling of Mr. Justice Rowlatt being that where the credit is confirmed the position in law of the banker is that of a person who has contracted to buy all the shipping documents representing goods shipped or to be shipped, under the contract of sale between the beneficiary and the person at whose instance the credit has been opened. He held that in such a case the banker must accept and pay for the documents irrespective of any defence which the buyer of the goods might have against the seller, and that such defence was solely a matter to be fought out between the buyer and the seller.

As this is a case of a present-day confirmed credit it will be of interest to state the actual wording of the Letter of Credit issued by the bank. It ran as follows :

"To Messrs. Urquhart Lindsay and Co., |
Dundee.

"Dear Sirs,—We beg to advise you that under instructions received from our Calcutta Branch we are prepared to pay you the amount of your bills on B. N. Elias, managing agent, the Benjamin Jute Mills Co. Ltd., Calcutta, to the extent of, but not exceeding, £70,000 in all (say, seventy thousand pounds). The bills are to be accompanied by the following complete documents covering shipments of machinery to Calcutta, are to be drawn payable 30 days after sight, and are to be received by us for payment on or before April 14, 1921 :

Signed invoices in duplicate.

Complete sets of bills of lading made out to order, endorsed in blank and marked by the shipping company 'freight paid.'

Policies of insurance against marine or war risks.

"This is to be considered a confirmed and irrevocable credit, and the bills should bear a clause to the effect that they are drawn under credit No. 102, dated Calcutta, Jan. 15, 1920."

This credit was opened in pursuance of a contract between Urquhart Lindsay and Co. and the Benjamin Jute Mills, by which the former were to manufacture certain machinery and deliver it f.o.b. Glasgow, for shipment to Calcutta. The contract contained a clause by which the prices payable for the machinery were to be increased in the event of a rise in wages, cost of materials, or transit

[1] (1922) 27 Com. Cases, 124.

rates, or in the event of any further reduction in working hours. Two instalments of the machinery were manufactured and shipped and duly paid for by the bank. A third instalment was also manufactured and shipped, but the bank in this case refused to take up the shipping documents and to honour the draft. The ground of the refusal was that items for extra cost of labour were included in the invoice price of the goods, and that the bank had been instructed by the Benjamin Jute Mills to refuse payment in those circumstances.

Urquhart Lindsay and Co. elected to treat this refusal as a repudiation of the entire contract contained in the confirmed credit, and not merely as a refusal to pay the price of the one instalment of machinery. They claimed as damages the loss of material thrown on their hands, and also loss of profit ; in other words their contention was that the effect of opening the irrevocable credit was to constitute an agreement by the bank to take up the shipping documents without regard to the contract between the Dundee firm and the Calcutta company for the sale of the machinery, and that the bank, by basing their refusal to pay on the ground that the price was incorrect, had repudiated the contract contained in the Letter of Credit, thus putting an end to it, and entitling the Dundee firm (if they adopted the repudiation) to claim damages analogous to those for a repudiation of a contract to purchase and pay for goods to be manufactured.

Mr. Justice Rowlatt upheld this contention. He said : " The defendants undertook to pay the amount of invoices for machinery without qualification, the basis of this form of banking facility being that the buyer is taken for the purpose of all questions between himself and his banker, or between his banker and the seller, to accept the invoices of the seller as correct. It seems to me that, so far from the Letter of Credit being qualified by the contract of sale, the latter must accommodate itself to the Letter of Credit. . . . There being thus, in my view, a breach of contract, the question is what damages the plaintiffs can recover . . . In the present case the credit was irrevocable and the effect of that was that the bank really agreed to buy the contemplated series of bills and documents representing the contemplated shipments, just as the buyers agreed to take and pay for, by this means, the goods themselves. Now, if a buyer under a contract of this sort declines to pay for an instalment of the goods, the seller can cancel, and claim damages upon the footing of an anticipatory breach of the contract of sale as a whole. These damages are not for non-payment of money. It is true that non-payment of money was what the buyer was guilty of, but such non-payment is evidence of a repudiation of the contract to accept and pay for the remainder of the goods ; and the damages are in respect of such repudiation . . . The damages to which the plaintiffs are entitled is the difference between, on the one hand, the value of the materials left on their hands and the cost of such as they would have further provided, and on the other hand, what they

would have been entitled to receive for the manufactured machinery from the buyers."

It is submitted that this is a correct exposition of the law. The object of a confirmed irrevocable credit is to provide the exporter with a paymaster in the country of export, for the express purpose of ensuring payment of the invoice price of the goods without question. To allow the banker to challenge the invoice prices would be to strike at the roots of the confirmed credit as an instrument of commerce. Such conduct on the part of the banker is an intimation to the beneficiary under the credit that the banker does not consider himself to be any longer bound by the contract established by the Letter of Credit. In other words, the banker is not merely refusing to honour the bill of exchange, but is breaking the whole of the contract contained in the letter. This being so, the beneficiary is entitled to take up the attitude that he accepts the repudiation, and to sue for all consequential loss flowing from a refusal to carry out the obligation to purchase all the shipping documents which are within the terms of the credit at invoice prices.

III.—The Security for Advances made under Bankers' Credits.

In commercial transactions of the type under discussion the shipping documents are handed to the banker as cover for his advances. The effect of this in law is to constitute a pledge to the banker of the goods represented by the documents, the consideration for the pledge being the liability the banker assumes under the credit at his customer's request, and the object of the pledge being his indemnification against that liability. This pledge carries with it a right of sale of the goods by the banker in the event of his being called on to pay, though, possibly, it may be advisable that this right should not be exercised until the customer has failed to reimburse the banker after a reasonable notice has been given to him of the banker's intention to realize the security.[1] It may be mentioned that a "Transportation" or "Received for Shipment" bill of lading is a much less desirable security than a "Shipped" bill of lading, as it possesses very grave defects from the banker's point of view. Where a bill of lading is issued in this form the banker has no certainty as to the time at which the goods will arrive. He may often not know the name of the ship which is carrying the goods, a circumstance which is bound to cause grave inconvenience to the banking staff whose duty it is to watch for the arrival of the goods. It will be enough to say, in this place, that the status of this form of bill of lading has been a matter of acute controversy in business circles, though it is believed that a practical

[1] Banner *v.* Johnston (1871), L.R. 5 H.L., 157, and see the comments on this case in Paget's *Banking*, 3rd ed., p. 449.

solution of the difficulty is in course of being arrived at as the result of negotiation between the various interests concerned.

The validity of a pledge at Common Law is dependent on the delivery of the goods to be pledged, either to the pledgee himself or to some person authorized to hold them on his behalf. This delivery may take the form either of the actual handing over of the goods to the pledgee or of a constructive or symbolical delivery. This constructive delivery may be effected either by handing over to the pledgee a document of title, such as the bill of lading, which *per se* amounts to a delivery and transfer of the goods, or by an agreement on the part of the owner of the goods, or the person in possession of the goods, to hold them as bailee on behalf of the pledgee, a device which is deemed to change the nature of the original possession of the goods so as to amount to a constructive delivery. The handing over of a delivery order on a warehouseman by the owner is insufficient to create a valid pledge, because in such a case the warehouseman cannot be compelled, without his consent, to change his character of agent for the owner and it is therefore necessary that he should attorn to the pledgee, i.e., agree to hold the goods for him before the goods can be regarded as having been delivered constructively.[1]

The effect in law of the handing over of a delivery order for the purpose of giving security is well illustrated by the recent case of the Dublin City Distillery *v.* Doherty.[2] In that case the company, which held a large stock of manufactured whisky in bond, purported to pledge the goods to Doherty as security for advances by giving him a warrant which stated that the goods were deliverable to him or assigns by endorsement on the warrant. Notwithstanding the issue of the warrant the course of business was for the company to sell the whisky with Doherty's consent and to substitute other whisky by way of fresh security, and to issue a new warrant. As the company's warehouse was a bonded warehouse the whisky could not have been delivered to Doherty in any case without the consent of the Customs officer-in-charge, and without the presentation of a delivery order in the Government form. On these facts it was held by the House of Lords that there had been no constructive delivery, and that, consequently, the purported pledge was invalid.

Constructive delivery can, however, always be effected by endorsing a bill of lading to the banker, and the questions which arise where the pledge takes this form are of a different character. A pledge connotes possession by the pledgee of the goods which form his security, so that if he parts with possession, either of the goods themselves or of the bill of lading, the pledge comes to an end, and the security is lost. If the banker desires to give possession either of the goods or of the bill of lading to his customer, in order to facilitate realization, it is necessary to devise some means by which

[1] (1846) Farina *v.* Home, 16 M. and W., 119. [2] (1914) A.C., 823.

this can be done without putting an end to the pledge. This has led to the adoption for this purpose of the so-called Letter of Hypothecation, sometimes called a Letter of Lien, or a Letter of Trust.

The term "hypothecation" is unknown to the Common Law, and has been borrowed from Maritime Law. It denotes a transaction by which goods are made available as security for a debt without a transfer either of property or possession to the creditor. It is not a term of art, as a lawyer would say, and it is, therefore, difficult to define its legal characteristics with precision. Sir John Paget, in discussing its application to Letters of Hypothecation, states that their effect may be regarded as a conversion of the possession of the owner of the goods into that of a bailee from the pledgee, or as an equitable agreement by the owner to create a pledge subsequently.[1]

To these functions may be added a third, namely, the preservation of the rights of the pledgee parting with possession of the goods for a limited purpose. At Common Law, although a parting with possession of the goods is destructive of the pledge, a delivery of the goods for a limited purpose has always been permitted. This principle was laid down in the leading case of North-Western Bank *v.* Poynter,[2] in which the facts were as follows: Bills of lading for a cargo of phosphate rock were pledged to the bank as security for an advance, but were subsequently redelivered to the pledgors for the purpose of enabling the latter to complete a contract for the sale by them of the goods. The documents were so handed back on the terms of a Letter of Hypothecation by which the pledgors were constituted the agents of the pledgees for the purpose of selling the goods, and which contained an undertaking by the pledgors to pay over the proceeds to the pledgees immediately on receipt. The goods were delivered to the purchasers, but before the whole of the price had been paid over the pledgors stopped payment. The short point in the case, therefore, was whether the portion of the price still in the hands of the purchasers belonged to the bank as pledgees or to the creditors of the pledgors. It was admitted, on behalf of the latter, that a redelivery to an agent, who was a stranger to the contract of pledge, did not operate to put an end to the pledge, because the possession of the stranger was in that case the possession of the pledgee. But it was contended that the position was otherwise where the redelivery was to the pledgor himself, and that in this event the latter resumed possession of his property freed from the burden of the security. This argument found no favour with the House of Lords, which reaffirmed the principle that a pledgee may redeliver the goods to the pledgor for a limited purpose without in any way impairing his security.

The banker can therefore hand over the bill of lading to his

[1] Paget's *Banking*, 3rd ed., p. 429.

[2] (1895) A.C., 56. This was a Scottish Appeal, but the law on the point is the same as in England.

customer for the purpose of realizing the goods without endangering his security on that account, but the matter does not end there. The validity of Letters of Hypothecation has from time to time been challenged by creditors of the pledgor on other grounds, which may be summarized in this way. It has been claimed, in the first place, that Letters of Hypothecation are void, either as unregistered Bills of Sale or as unregistered charges on book debts under the Companies Act,[1] or, alternatively, that under the reputed ownership clause of the Bankruptcy Act, 1914, the goods pass to the trustee in bankruptcy of the person giving the Letter of Hypothecation as being in the possession, order or disposition of the latter in his trade or business, by the consent and permission of the true owner so as to make the bankrupt the reputed owner of the goods.[2] These attempts to deprive the banker of his security have been uniformly unsuccessful, and the position of the banker is well illustrated by referring to the recent case of *re* David Allester Ltd.[3] In that case Barclays Bank were pledgees of a bill of lading, which they handed to the company in order to facilitate realization. The company gave a Letter of Hypothecation in these terms :

" To Barclays Bank Ltd.

" Gentlemen,—We have to acknowledge receipt of invoice bill of lading and copy of insurance policy representing . . . We receive the above in trust on your account, and we undertake to hold the goods when received and their proceeds when sold as your trustees. We further undertake to keep this transaction separate from any others and to remit you direct the entire net proceeds when realized, but not less than £—— within 28 days from this date. We undertake to cover the goods by insurance against fire and to hold the policy or policies on your behalf."

The company went into liquidation, and, at the time of their so doing, certain of the goods had been realized. The proceeds were claimed both by the liquidator and by the bank. The liquidator opposed the claim of the bank on the ground that the Letter of Hypothecation was either a bill of sale within the meaning of the Bills of Sale Acts or, alternatively, a mortgage of book debts under the Companies Acts, and that it was consequently void for non-registration. Admittedly there had been no registration and there were, therefore, three issues before the Court : (*a*) Did the claim of the bank to the proceeds depend on the Letter of Hypothecation? (*b*) If so, was the Letter of Hypothecation a Bill of Sale? (*c*) Or, alternatively, was it a mortgage of book debts? The contentions of the liquidator were rejected by Mr. Justice Astbury, who ruled in

[1] Companies (Consolidation) Act, 1908, s. 93.

[2] Bankruptcy Act, 1914, s. 38.

[3] (1922) 38 T.L.R., 611. As this was a matter arising in the course of the liquidation of a limited company, the question of " reputed ownership " did not arise.

favour of the bank. He based his decision primarily on the ground that the Letter of Hypothecation could in this instance be disregarded, as the bank had, by reason of the pledge, a title to the proceeds quite independently of the Letter of Hypothecation. The policy of the Bills of Sale Acts is to strike at documents and not at transactions. Consequently, if a title can be shown without having recourse to the document, the Acts do not apply.[1] In the case under discussion, the rights of the bank as pledgees to the goods and their proceeds did not depend in any way on the Letter of Hypothecation, but arose independently and were complete at an earlier date when they received the documents of title for the goods by way of pledge. But quite apart from this the learned Judge also held that the bank were entitled to redeliver the goods to the company for purposes of realization without forfeiting their rights as pledgees, and further that in any event the document was not a bill of sale, as it fell within the exceptions contained in sec. 4 of the Bills of Sale Act, 1878, as being a document used in the ordinary course of business as proof of the possession or control of goods. He referred to the statement of Lord Sumner (then Mr. Justice Hamilton) in the case of *Re* Hamilton Young and Co.[2] that these documents evidence transactions between bankers and merchants, "which happen by the score every day of the week in places of business like Manchester."

As regards the third point taken by the liquidator, Mr. Justice Astbury also held that the Letter of Hypothecation was not a mortgage or charge on book debts within sec. 93 of the Companies (Consolidation) Act, 1908. Counsel for the liquidator had craved in aid the decision of the Master of the Rolls (then Mr. Justice Pickford), in an earlier case of Ladenburg and Co. *v.* Goodwin and Ferreira.[3] The facts in that case were peculiar. The plaintiffs, the bankers, agreed to make advances against shipments by the defendants, a firm of merchants, to customers in South America. The course of business was as follows : The merchants forwarded drafts to the bankers for their acceptance drawn in respect of specified shipments, and to these drafts they attached copies (not originals) of the shipping documents, together with a letter hypothecating the goods to the bankers as security. The goods were sold on what were, to all intents and purposes, f.o.b. terms, i.e., all charges on the goods after they left the warehouse were to fall on the buyers, and the bill of lading was made out to the order of the buyers. It was pointed out by Mr. Justice Pickford that in these circumstances the only thing which could be hypothecated was the proceeds of the goods, because the interest in the goods themselves had passed away from the merchants to their customers. All that was given by way of security was an equitable charge over the price of the

[1] *Ex parte* Hubbard (1886), 17 Q.B.D., 690. [2] (1905) 2 K.B., 772.
[3] (1912) 3 K.B., 274.

goods which, until payment, was a book debt. He, therefore, held that the Letter of Hypothecation gave a charge over book debts, and that the case therefore fell within sec. 93 of the Companies (Consolidation) Act, 1908, thus rendering the document void in default of registration. Mr. Justice Astbury declined to treat this case as applicable to the facts in the Allester case. He pointed out that the facts in the Ladenburg case were entirely different. "There the bank had no pledge until the transaction, and that was undoubtedly a charge on book debts. The bank there had no previous right; the charge was explicit, and there was nothing to charge except book debts . . . Here (i.e., in the Allester case) the bank as pledgees created by the document a trust agency for the purpose of realization of the property. In no sense was the document a mortgage or charge within sec. 93."

Where an individual trader or a partnership firm becomes bankrupt there remains the further question of the effect of sec. 38 of the Bankruptcy Act, 1914 (the reputed ownership clause), on a transaction of this nature. If the question could be considered apart from case law, it would seem very difficult to argue, where the goods or the bill of lading are handed back to the pledgor and he is made bankrupt, that they are not in the possession, order or disposition of the bankrupt in his trade or business with the consent of the banker, and that the trustee in bankruptcy therefore cannot claim them, but one must bow to the very high authority of the Judges who decided the case of *Re* Hamilton Young and Co., which has already been referred to. No detailed reasons are given for their conclusions, in fact the Court of Appeal gave no reasons whatsoever, and one can only surmise that they were of opinion that transactions of this kind are so frequent and so notorious in business that the reputation of ownership does not exist.[1] Be that as it may, it must now be taken that the Letter of Hypothecation has come to stay as one of the recognized instruments of commerce, and that its validity in law is well recognized.

A word of warning may, however, not be out of place. It would seem that the rights enjoyed by a banker under a Letter of Hypothecation are of an equitable character. As pointed out by the learned Judge in the Ladenburg case, the effect of the document is to create a charge by way of an equitable assignment of the goods or their proceeds, as the case may be. This charge can be perfected by giving notice to any person into whose hands the goods are delivered, but such person can only be required to deliver up the goods to the banker if he acquired them with notice of the hypothecation, and he cannot be made to pay the price to the banker if he has already paid it over to the pledgor before receiving such notice. To that extent, therefore, the protection afforded by the Letter of

[1] See the remarks of Paget, *Banking*, p. 429.

Hypothecation is defective. Moreover, the exemption of this form of security from the operation of the Bills of Sale Acts and of the Law of Bankruptcy depends on the question whether the document is in a form which is the form usually employed in business. If it does not answer to this description it may well cease to be privileged.

In conclusion, the difficulties which are encountered by lawyers when called on to deal with disputes arising out of Bankers' Commercial Credits are due to two causes. In the first place, men of business are not always in agreement amongst themselves as to the nature and scope of some of the forms which the documents assume; and secondly, the case law on the subject is scanty, and not always easy to reconcile; so that there is little or no authority on some of the questions which have arisen and may arise hereafter. But for this very reason the subject is one of great interest, as it furnishes an admirable illustration of the process of development of English Commercial Law when it is called on to deal with new problems arising out of altered conditions of business.

Iron and Steel Production in India

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Writing some years ago on the Mineral Wealth of India, Captain Townsend, of the Ordnance Department, observed that nothing struck the student of Indian industrial conditions so much as the contrast between the bounty of Nature and the poverty of man in the iron industry of the country; for, endowed more richly in iron ore than almost any other country in the world, the India of his days had, in a commercial sense, no iron industry at all. But going further back into the beginnings of history, we see that India possessed in her earlier days a flourishing iron industry. Megasthenes, the Greek ambassador at Chandragupta's court, refers to the existence in the country of large quantities of metalliferous ores, including iron, and their conversion into articles of use and ornament as well as the implements and accoutrements of war. The smelting and forging of iron appear to have been among the oldest of Indian arts, and were probably acquired from the Chinese. The industry, so it has been asserted by a careful student of Indian economic conditions, not only supplied all local wants but also enabled India to export her finished products to foreign countries. The quality of the material turned out had also a world-wide fame. The famous iron pillar near Delhi, which is at least fifteen hundred years old, indicates an amount of skill in the manufacture of wrought iron which has been the marvel of all who have endeavoured to account for it. The methods employed in its construction remain yet unsolved, and it is not many decades since the production of such a pillar would have been an impossibility in the largest factories of the world. Cannon of the largest calibre were manufactured in Assam; and the production of the ancient *wootz*, which furnished the material out of which the well-renowned Damascus blades were made, anticipated by many centuries the cementation process developed in Europe for making the finer qualities of steel. With the development of the import trade and the extension of railways, the native iron-smelting industry has been stamped out except in the wilder and more out-of-the-way regions, where it still struggles against the competition of the imported products. The village blacksmith had, until recently, his own definite place in the rural economy of India; and in some parts of the country even now continues to produce small blooms of soft iron for making axe-heads and ploughshares. In 1916, it has been calculated, there were 300 native blast furnaces in the Central Provinces, where nearly 4,500 tons of iron ore were smelted.

While the imported goods produced abroad by modern methods were snuffing out the indigenous industry, the attempts to introduce European processes of manufacture into the country were themselves faced with extraordinary difficulties. The pioneer in this respect was Josiah Marshall Heath, a retired Madras civilian and a friend of Charles Dickens, who established an ironworks at Porto Novo (South Arcot) in 1830 under a grant from the East India Company. His idea was to manufacture bar iron and offer it for sale in England in competition with Swedish iron. Experiments soon crippled his scanty capital, and a loan from the East India Co. of 5·75 lakhs of rupees was also swallowed up in the same endeavour. He installed furnaces capable of producing 40 tons of pig-iron a week, but his boiler burst ; his blowing engines had to be driven by bullocks ; his operators lacked practical experience ; and his processes were extravagantly wasteful, involving an expenditure of 3·75 tons of charcoal for one ton of pig-iron. In 1837 the company's aid had once again to be resorted to, but it was not forthcoming, and, broken in health and reduced to poverty, Heath died a martyr to his own enthusiastic if imprudent experiments. In 1853, the East India Iron Co., with a capital of £400,000, took up Heath's work and established two blast furnaces in South Arcot ; but on account of the indifferent nature of the results obtained the works were abandoned in 1874.

The Barakar Iron Works Co. was established in 1875 on the Jherriah coalfields, 143 miles off Calcutta, but the works were closed down in 1879. The Government took up the venture in 1881, and eight and a half years later made it over to the Bengal Iron and Steel Co. Ltd., which has since been producing pig-iron, the annual outturn of which was, at the beginning of the present century, about 35,000 tons. In 1905 it opened a steel department, but conditions were then unfavourable for steel production. The low price of imported steel, the absence of a bold and consistent policy of state aid, the fact that the orders received were for small quantities of steel of numerous sections, instead of being confined to large orders for a few sections (Government placed 180 orders in six months, but they totalled less than 1,000 tons and included 70 different sections), the inferior quality of pig-iron, and the necessity for importing firebrick and ferro-manganese—all these contributed to make the attempt a failure. The steel department was therefore closed after a year's work, and attention concentrated on pig-iron.

In 1910 the company commenced to draw its supplies of iron-ore from a new source—viz., Pansira Buru and Buda Buru, some twelve miles from Manharpur in Singhbhum, and from this date commenced a new era in its history. The works were extended and remodelled, and the four blast furnaces now in operation are each capable of producing 80 tons of pig-iron a day. About half the coke required is made by the company, and the balance is purchased locally. The steam is generated in boilers fired by the waste gases

from the furnaces. The output of pig-iron under normal conditions is about 10,000 tons a month; but since November, 1917, one furnace has been diverted to the manufacture of ferro-manganese for export to Europe and America for war purposes. The pig-iron is in part consumed in the company's foundries, etc., in part marketed in India, and in part exported, principally to Japan, Australia, and South Africa. The coke-ovens are fitted with plant for the recovery of by-products, tar and ammonia, the latter being converted into the fertilizer ammonium sulphate. The sulphuric acid is made at the works in a modern plant producing about five tons daily, and the monthly yield of ammonium sulphate is about 95 tons. The works also contain a large foundry making pipes up to 12 in. in diameter, bends, columns, fencing-sockets, pot-sleepers, and chains, and are capable of producing castings up to 20 tons in weight.

Towards the close of 1919 a new company, called the Bengal Iron Co. Ltd., was incorporated with a share capital of £2·5 millions, which acquired as a going concern the business and undertaking of the Bengal Iron and Steel Co., and the total net additions to the plant since the new company was started are estimated to exceed in value £650,000. The new and larger blast furnace, stoves, and blowing plant at Kulti are nearly ready to be put into operation, and alterations have been made in the equipment that will make it feasible to blow all five furnaces at once instead of only three, as formerly. Extensions of the colliery and ore-mining plant and of rolling-stock are contemplated, and debentures for £600,000 have recently (February, 1922) been issued to raise money for the purpose. It is expected that the various additions already made will practically double the company's output capacity as compared with the position a year ago. The financial position of the company is shown by the following statement of the net profits for the last five years and a half:

	£	s.	d.	
Year ended Sept. 30th, 1916...	149,380	5	6	converted at 16d. per rupee.
,, ,, ,, ,, 1917...	136,874	10	8	
,, ,, ,, ,, 1918...	280,823	4	6	
,, ,, ,, ,, 1919...	276,309	10	11	
½-year ,, Mar. 31st, 1920...	241,209	6	5	at 24d. per rupee.
Year ,, ,, ,, 1921...	282,288	7	2	at 17·87d. per rupee.

This is as against an issued and paid-up capital of £2,074,033, while the net assets of the company, according to its last balance sheet (March 31st, 1921), came to over £2,300,000.

The figures for the output of pig-iron, iron castings, and ferro-manganese are (in tons):

Year.	Pig-iron.	Iron castings.	Ferro-manganese.
1914 ...	72,444 ...	18,084 ...	Nil
1915 ...	87,285 ...	25,634 ...	Nil
1916 ...	92,250 ...	30,605 ...	Nil
1917 ...	80,252 ...	20,678 ...	2,257
1918 ...	49,348 ...	21,776 ...	112,114
1919 ...	84,965 ...	29,635 ...	4,732

In marked contrast to the history of this undertaking, which has clambered up to its present position of security and eminence only after years of arduous toil, stands the Tata Iron and Steel Co., the rapidity of the growth of which has been one of the marvels of modern industrial history. "The cotton mills of Bombay, the jute mills of Calcutta, the goldfields of Mysore, each contribute their own remarkable chapter to the history of industrial enterprise in India, but none can compare in point of romance with the story of the iron and steel industry of Jamshedpur." It is the story of the fulfilment of the dreams and desires of one of the most remarkable Indians of modern times. Of the late Mr. J. N. Tata, the founder of the house of Tata, Sons, and Co., and the originator of this bold and daring scheme, it may be said that there has hardly been any other man among India's millions who has thus united within himself just those qualities of which the Indian peoples stand so greatly in need. Combining within himself a broad imagination, penetrative insight, calculating and laborious study and high organizing capacity, as a pioneer of Indian industry he stands entirely alone, and so far has had no conspicuous successor. Born in 1839 in Navsari (Baroda), of parents belonging to the Parsi priestly class, he spent six years in the Bombay Elphinstone College, and subsequently went into his father's business at Bombay, and later into an office at Hong-Kong. Industries of all kinds had for him a singular attraction, and even from his early days, the idea of combining the untold but undeveloped natural resources of the country, with its cheap and easily available labour, in order to produce "big business," haunted him like a passion. But he was no idle visionary; for, while gifted with a broad and comprehensive vision, he also possessed an infinite capacity for mastering the most meticulous detail. He studied textiles in Manchester before erecting the famous Empress Mills of Nagpur, and emerged from his studies an expert of the first order. It was this close and painstaking study of detail which gave him that calm courage, and confidence of ultimate success, without which none of his greater projects would have been pushed through to a satisfactory termination.

The creation of an iron and steel industry was, perhaps, the most important item, from a business point of view, in his triple scheme of development, which crystallized into definite shape sometime about 1895. With the unerring instinct of the born industrialist, he perceived that in the absence of such an industry in India, she can never become economically independent and self-contained. He realized, as no other Indian before him, that iron-smelting was the first link in the chain of production: without it, there are no tools, and without tools even the raw materials cannot be wrested from Nature or undergo the most rudimentary treatment. But in his efforts to start such an important industry, he met with no support and little encouragement. Railway experts declared that steel rails could never be manufactured in India on any large scale: the

earlier attempts, they said, had proved it only too conclusively. But there were some notable exceptions, and prominent among them was Sir Thomas Holland, then at the head of the Geological Survey of India. It was in the Central Provinces that Tata started active work ; he obtained a concession to work the Lokara ore with Warora coal, but the attempt proved unavailing, and the scheme had to be relinquished. In 1902, he went to the United States where he saw Mr. C. Page Perin, and was able to induce him to send out a party of prospectors headed by Mr. C. M. Weld. After protracted preliminary investigations (which cost Tata about £35,000), in the course of which many hardships and difficulties had to be encountered, Mr. Weld succeeded in locating one of the richest iron-ore deposits in the world, with a metal content of 66 per cent., in the Rajara Hills in the Central Provinces and the Dhullee Hill near by. But the Gurumaishini deposits offered more favourable conditions for immediate operations on account of the proximity of the Jherriah coalfields. A favourable spot for operations combining both ore and coal conveniences being secured, Tata's successors tried to find in London the financial support needed for such a huge undertaking, but with little success. The bulk of the money was subsequently raised in India, and in August, 1907, the Tata Iron and Steel Co. Ltd. was registered in Bombay, with an authorized share capital of £1,545,000, which was speedily taken up, and which was increased in 1916 to £2,347,500, and again in 1918 to the present amount of £7,014,166 (paid up). Early in 1908 the company decided to erect their works at Sakchi (renamed Jamshedpur at the close of the war), then an obscure Santali village, in preference to Sini, a junction on the Bengal-Nagpur railway, which was the place first chosen, inasmuch as the former, bounded on the north by the Subarnarekha and on the west by the Khorkai, afforded a perpetual water supply, an indispensable necessity for the manufacture of steel. Jungle-clearing was begun in February, 1908, machinery began to arrive in 1910, and the coke-ovens were fired for the first time on October 12th, 1911. By the beginning of November the same year the first (or " A ") blast furnace was blown in. Pig-iron was an immediate success, but steel presented greater difficulties, and though the steel works began operation early in 1912, the first piece of ingot steel was rolled on the blooming mill on February 16th, 1912, and the first rails were produced next March, it was not till the commencement of the next year that regulated steel production was ensured.

Tata's is the only steel producing concern in India at the present day—(the Indian Iron and Steel Co. Ltd., floated in 1918, with a nominal capital of 50 lakhs of rupees by Messrs. Burn and Co., Calcutta, have now almost completed their works at Alansol, and the details of two other large iron and steel projects are also being worked out)—and while its initiation and efficient management are solely due to the firm's own enterprise and business capacity, external conditions have also contributed somewhat to its development.

The Maharajah of Mourbhanj, from whom it has leased out extensive acres, is not only its landlord but also one of its active well-wishers and supporters, taking £20,000 worth of shares in it at its very inception. The Government has acquired land for it under the Land Acquisition Act, and given it several valuable mining concessions. The Bengal-Nagpur Railway has built for it a new railway station at Kalimati on the main line, and extended it to Jamshedpur three miles off. The firm has also had the advantage of freight at concession rates for construction material, plant, the assembly of raw material, and for finished products sent out for shipment to Calcutta. Another line forty miles long has been built from Kalimati to the iron hills of Gurumaishini. The company was also greatly helped in its earlier days by the Indian Railway Board's offer to take, annually for ten years, 20,000 tons of steel rails of standard quality at the same price as imported rails of like quality, delivered c.i.f. Indian ports. Before the company started operations, India's contribution to the total world-production of steel and iron was practically negligible, and in 1906 amounted only to 1/2,000th of the annual world production of pig-iron, while for steel she had to depend entirely on foreign countries. The subsequent development of the Bengal and Tata companies has made an appreciable change in that position. The Tata company's production of iron and steel for the period 1914-19 is shown in tabular form below (in tons) :

Year.	Pig-iron.	Steel (including rails).	Steel Rails.	Ore used.
1914	162,282	66,603	45,639	284,603
1915	154,509	76,355	16,817	240,513
1916	152,460	92,902	36,595	249,601
1917	167,870	114,027	72,670	273,440
1918	198,064	130,043	71,096	338,736
1919	232,368	134,061	70,969	354,512*

* 10 months only.

The present steel capacity is about 200,000 tons annually, and the rolling mills produce about 120,000 tons of rails and smaller sections. The production of finished goods available for sale for 1920 was only 88,990 tons of pig-iron and 120,570 tons of finished steel. But the extensions now in hand, calculated to cost over £12,500,000, are expected to increase the production available for sale to 174,000 tons of pig-iron and 425,000 tons of finished steel. The works have all along been extended in response to the increased demands on them, beginning with Mr. Perin's generously planned scheme of 1916, framed to meet the necessities of the war. In their Report for the year ended March 31st, 1921, the Directors state that " the original scheme for the greater extensions provided for two blast furnaces, one duplex (steel) furnace, a plate mill, a continuous sheet, bar and billet mill, sheet mills, and a merchant mill, with their requisite miscellaneous equipment. The original plan has undergone many alterations and additions. In 1917-18 the scheme was enlarged considerably. In 1917 one additional blast

furnace (the Batelle furnace) was purchased, and it has been in operation since August, 1919, a blooming mill, a rail-and-structural mill, and a second duplex furnace were added ; the capacity of the plate mill was increased ; and substantial additions were made to the continuous sheet, bar and billet mill, the sheet mills and the merchant mill, as a result of improvements in design and with the object of increasing their capacity. In order to provide the raw materials required for the increased production, the company has made large additions to its reserves of coal, ore, and fluxes ; and has now in sight and under its control fully adequate supplies for the near future. The development of the towns has naturally kept pace with this expansion, and in 1918 the company obtained an additional twenty square miles of land to provide for the suitable housing of its workmen, and for the subsidiary industries which will eventually be grouped round the steel works. This is the scheme for the greater extensions as it stands at present."

The financial position of the company continues to be as satisfactory as ever, and the profits for the six years and nine months ended March 31st, 1921 (before providing for debenture interest, depreciation, and taxation) were :

Year ended June 30th, 1915	£186,900
,, ,, ,, ,, 1916	486,513
,, ,, ,, ,, 1917	755,379
,, ,, ,, ,, 1918	745,723
Nine months ended March 31st, 1919, after deducting expenses of second issue of Preference shares	301,353
Year ended March 31st, 1920	838,099
,, ,, ,, ,, 1921	840,146

In order to provide the additional funds required to carry out the full programme of extensions, as well as for redeeming the two crores of rupees debentures (£1,333,333) already issued, debenture stock for £2,000,000 was offered and has been taken up in July, 1922.

The phenomenal success that has attended the Indian iron and steel ventures during the last half a dozen years was largely attributable to the industrial cataclysm caused by the war ; and it is a point worth consideration whether, deprived of the artificial stimulus the industry has thus received, it will be able to hold its own in normal times against the great iron and steel firms of the United Kingdom and America, not to mention Germany, which has not yet emerged from her throes. The principal factors of success in such an undertaking are adequate supplies of raw material and other favourable conditions of production. The experience of past years has already shown that Indian pig-iron is as good as the best imported, and that the Tata steel is eminently suitable for rails, fishplates, and other railway requirements, and also for the usual engineering purposes. The question is whether India can afford to produce on a commercial scale material of the same high quality for any length of time, and withstand the competition of firms which have had the momentum of an earlier start. The Tata Company estimates its reserves of raw material as follows :

High grade iron ore (60% metal content)	...	...	...	...	...	...	200	million	tons.
Dolomite	...	...	...	...	...	...	86	,,	,,
Magnesite	...	...	...	...	...	...	3	,,	,,
Limestone	...	...	...	...	...	...	4	,,	,,
Coal	...	...	...	...	...	...	889	,,	,,

The Bengal Iron Co. also owns extensive collieries and has leases of practically inexhaustible supplies of rich iron ore. The discovery of the Pansira Buru and Buda Buru deposits of iron ore in the Saranda forests of Singhbhum is destined, according to Dr. Fermor, of the Geological Survey of India, to rank as an epoch-making event in the history of the iron and steel industry ; for, following on it, subsequent prospectors have discovered a range of iron ore forming a definite geological stratum in the Dharwars of Singhbhum. Rising to heights of 2,000 to 3,000 feet above sea-level, this range runs almost continuously for forty miles from Pansira Buru through Saranda into the Keonjhar and Bonai states of Orissa ; and Dr. Fermor describes how he saw in the Pansira Buru area a body of high-grade hematite, consisting of 64 per cent. pure metal, about 400 feet thick, and 1,300 feet long, with a steep dip down which the deposits have been exposed by quarrying operations for some 500 feet. Tata's prospectors, investigating the range, declare that a ravine cutting across the range shows a continuous thickness of some 700 feet of hematite of over 60 per cent. metal content. From all this, there is reason to believe that India's reserves of high-grade iron ore are commensurate with as large an expansion of her iron and steel industries as may be justified by the requirements, not only of herself, but of the surrounding eastern markets. The life of the coal mines which the Tata Company possesses within a hundred miles of their works is estimated at 200 years, and they form only a very small portion of the great carboniferous area of the Gondwana regions. Jherriah coal, analysed by experts, contains a high percentage of ash, but yielded sufficiently hard coke for blast furnaces, nor was the high ash an objectionable feature in reducing such rich ores as those of the Gurumaishini and other mines. There are also vast deposits of excellent limestone and dolomite in the Gangpur State to the west of the Singhbhum district, while fireclay suitable for the manufacture of firebricks is obtainable from the shales of the Gondwana formation, and good firebricks are now being manufactured on the Bengal Iron Company's coalfields by Messrs. Burn and Co., by the Kamardhubi Fireclay and Silica Works, and by the Reliance Fireclay and Pottery Co. Ltd.

In describing the iron and steel position in India, a recent writer makes an interesting comparison between India, the United States of America (Lake Superior region), the Cleveland district in the north of England, and South Wales. The U.S.A. ore has a metal content of 50 per cent., but the distance to the coalfield is 800 miles, and to the sea-board 250 to 300 miles. In the north of England the ore is only 30 per cent. rich. South Wales uses ore 50 per cent. rich, but has to bring it all the way from Spain. In India, whose supply

of ore is estimated at about 3,000 million tons, ore, coal, fluxes, and fireclay, all occur in large quantities in the same favoured region, and the capital of the iron and steel industry, Jamshedpur, is only 152 miles away from Calcutta, 40 miles from the Gurumaishini district, and 115 miles from the Jherriah coalfields. The cost of mining and transporting to the coalfields (where ironworks are usually situated) the ore necessary to make one ton of pig-iron is 7s. in India, 40s. in the Lake Superior region, 26s. in Cleveland, and 40s. in Wales. The cost of delivering at the works the flux required comes to about 3s. per ton of pig-iron in all the four districts. But the price and quality of coal vary in these centres. In India it has risen from 5s. 6d. per ton at pit mouth in pre-war days to 13s. ; and 24s. worth of coal is required for one ton of pig-iron. America wants only 27s. worth ; South Wales, 30s. worth ; and Cleveland, 35s. worth of coal for one ton of pig-iron. Summing up, the cost of delivering at an ironworks all the raw materials required for one ton of pig-iron works out at 34s. in India, 70s. in America, 74s. in Cleveland, and 73s. in South Wales. Wages in India have risen considerably in the course of the last half a dozen years, and present rates are from 3s. or 4s. per diem for skilled, and 12 annas, or 1s., per diem for unskilled labour. But even these are very much lower than the rates elsewhere ; so that towards the latter part of 1921 it was possible for India to produce pig-iron at 40s. per ton, or 45s. f.o.b. Calcutta. The price of English steel took a sudden downward turn in 1921, and touched £6 per ton in July ; even at that price it was about thrice as costly as Indian steel.

The conditions for production being thus wholly favourable, it remains to consider whether there will be anything like a steady demand for the Indian output of steel and iron. The requirements of the country in iron and steel are indicated by the import returns as follows :

	1914.	1915.	1916.	1917.	1918.
Cutlery and hardware ...	£2,560,716	£1,855,856	£2,602,901	£2,361,399	£2,425,817
Millwork and machinery...	4,877,254	3,293,544	3,773,962	3,171,738	2,687,357
Railway plant and rolling stock ...	9,939,482	5,047,250	1,594,210	535,504	960,138
Iron bars and pig-iron ...	274,204	238,406	403,105	438,465	233,851
Iron or steel beams, sheets, pillars, rivets, etc. ...	7,276,789	5,196,734	5,003,957	4,888,314	5,289,928
Steel bars, angle and channel ingots, blooms, billets, etc. ...	1,361,937	775,552	656,646	437,519	1,679,264
Total ...	£26,290,382	£16,407,342	£14,034,781	11,832,939	£13,476,355

Or an average of £16,408,360 per annum.

The proportion of iron and steel and their products to the total imports are as under:

	1910-14.	1917-18.	1918-19.	1919-20.	1920-21.
Iron and steel ...	7%	5%	7%	8%	9%
Machinery ...	4%	3%	3%	5%	7%
Railway plant ...	4%	—	2%	2%	4%
Hardware ...	2%	2%	2%	2%	3%

The decline in 1917-18 was almost entirely due to war conditions, and the post-war tendency has been, naturally enough, towards greater expansion in imports. The Indian railway system has keenly felt the effects of the war, and a noticeable feature in recent imports has been the large increase in railway plant and rolling stock. The carriages and wagons imported in 1920 on private and Government account show an increase of £5·5 millions over the previous year's figures of £1·2 millions. Locomotive engines and tenders are also being imported in increasing numbers, the imports for 1920 being worth £0·9 million as against £0·5 million in 1919. The imports of sheets and plates, of beams, pillars, girders, and bridge work, and also of hardware, have shown a like expansion. The Indian mill and mining industries are showing steady development, and have been large purchasers of western millwork and machinery, and the demand for machinery of all kinds is bound to expand greatly for some years to come, on account of the present industrial boom in the country. The demand for steel last year was so great that exporters hardly felt the competition of Indian production. The Indian iron and steel producers have thus a vast and ever-increasing market at their very doors, and in the markets of the Far East enjoy unquestionable natural advantages over distant competitors. In addition to this must be mentioned the recent imposition of a customs duty of 10 per cent. on imported steel in India, which is calculated to still further strengthen their position.

It would be interesting to cast a glance at the post-war industrial developments in the Indian iron industry. The history of that industry elsewhere has shown that its extension has always been accompanied by combinations of firms dealing with the material in all its successive stages, from the crude ore to the most perfect machinery. Thus, coal and iron mines, iron and steel works, rolling mills, and sometimes engineering and shipbuilding works, are all found combined together, if not always under the same ownership and management, at least into unions where the various interests are all dovetailed together into some sort of harmonious oneness.

The operations of the English firm of Vickers range from steel to ordnance, motors and battleships; and the American Steel Corporation and the German Stahlwerksverband are other examples of the integration of the iron industry. With the completion of the proposed extensions in the Bengal and Tata companies, India will also take a step towards similar integration. The new alterations will revolutionize the engineering industry of the country, and the

production of steel in plates and sheets and other required forms will give a great fillip to the shipbuilding, engine-building, and constructional steel industries. The new electric furnace for the manufacture of high speed steel will render possible the local production of machine tools and high-grade steel goods. For the purpose of working up their iron, steel, and by-products, the Tata Company is arranging for the establishment of a number of manufacturing companies in and around Jamshedpur. Mr. T. W. Tutwiler, the General Manager of the company, gives a list of the various manufactures it is intended to set up, which include such widely-differing articles as steel products of various kinds, hardware, mill-work and machinery, structural steel, heavy chemicals, sulphuric and nitric acids, fertilizers, explosives, drugs, and perfume. In their last report, the Directors regret that " not much progress has been made by the subsidiary companies with whom they had been negotiating for the development of the subordinate industries " on account of the unusual circumstances of the past year. The Calcutta Monifieth Co. Ltd., under the auspices of James F. Low and Co. Ltd., of the Monifieth Foundry in Scotland, has started the manufacture of jute machinery, and drawing frames are already being turned out quite equal to those produced in the United Kingdom. The Hume Pipe and Construction Co. has one of its several factories in Jamshedpur, and is producing pipes in large numbers. Factories are also being erected by the Tinplate Co. of India, the Indian Steel Wire Products Ltd., the Enamelled Ironware Ltd., and the Enfield Cables Co. Ltd. The Tinplate Co. of India Ltd. is a large organization with a capital of three and a half crores of rupees, which will take steel bars from Tata's, and after rolling them, convert them into tin plates. Most of the output of the company will be taken over by the Burma Oil Co., which holds a large interest in the concern. Copperas will also be produced as a by-product from the pickling operations. The Indian Steel Wire Products Ltd. proposes to make iron wire and galvanized wire, and later on woven wire and similar products. The company is also erecting a factory for the production of steel shelves for record rooms. Other companies about to put up factories are the Agricultural Implement Co. and a Railway Wagon Co., while Portland cement works are already under construction. I have already referred to the manufacture of firebricks on the Bengal Iron Co.'s coalfields. That company has also taken a large interest in two new concerns—the Eastern Light Castings Co. Ltd. (of which it owns half the capital) and the Bengal Firebrick Syndicate. It is thus clear that, consequent on the rise of the iron and steel industry, the Singhbhum region promises to become, not only the metallurgical centre of India, but also a centre of various other industries.

The establishment of an industry so comprehensive in character is bound to have far-reaching effects on the development of the country. The Indian Industrial Commission has, in its attempts to analyse the deficiencies in India's industrial equipment, drawn

prominent attention to the effects produced by the absence of such an industry upon the general economic situation of the country. " The basis of modern organized industries in those countries, where they made their first appearance, was the manufacture of cast and wrought iron. The invention of the steam engine created the necessity for machine tools, to produce parts which would fit with sufficient accuracy to give smooth and efficient working. The existence of machine tools greatly facilitated the manufacture of standardized parts in large quantities, which were in demand for the mechanical processes required in textile and similar industries. These large scale manufactures increased the demand for industrial chemicals." The economic history of India has been cast on different lines. Being a tropical country with an abundant vegetation, it was at first only thought of as a storehouse of raw material. The export of raw material was thus encouraged ; a railway system and such other mechanical facilities as were necessary for the preparation and transport of produce for export have been brought into existence ; but in the absence of an iron and steel industry, recourse had to be had, in every case, to imported appliances. Even the few industries that, despite all adverse circumstances, somehow sprang into being, like the great textile industries of India, had to depend on imported plant and spares. Conditions like these are not conducive to encourage manufacture or to render the country economically self-sufficient. One principal result of the establishment of the steel industry will be, it is expected, a removal of this serious handicap to industrial expansion. As opening up a new avenue of employment, and as affording encouragement for the investment of capital in industrial securities, the new venture has done some valuable services ; but these are services which successful manufacturing concerns of every description are able to render. There is, however, another aspect in which the services of such a firm as Tata's may be regarded as of unique national value. " I can hardly imagine," handsomely acknowledged Lord Chelmsford, when he renamed Sakchi Jamshedpur in honour of its founder, " what we should have done if the Tata Company had not been able to give us steel rails which have provided, not only for Mesopotamia, but for Egypt, Palestine, and East Africa," and even, he could have added, for the Salonica front. The company has also shown that the production of armour plates, steel shells, and explosives is not beyond the capacity of its works. It can also undertake, if need be, the manufacture of most kinds of arms and munitions. If in some future war the Suez Canal be blocked, and India cut off from the mother-country, it may well be that works like Tata's may serve as arsenals for the outlying parts of the Empire, and enable them to defend themselves till communications are restored. The political and military significance of such an enterprise is by no means to be cast into the shade by its direct industrial results.

Some Aspects of Workers' Control in Industry

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As distinguished from the State Socialist who is most deeply concerned with the fact of poverty, the Guild Socialist regards servility as the most objectionable feature of modern industrial organization. He has for the moment abandoned the direct effort to abolish poverty ; he concentrates rather upon psychological *malaise*, partly because liberty seems to him more important to man than comfort, and partly because, in his view, poverty, being the symptom, will inevitably disappear with servility, which is the disease.[1] Make a man free and self-governing, that is, assure him economic security and give him his own work-place to run—he will no longer be unhappy, and he will shortly cease to be poor ; for he will then control the process of production, the product, and his own particular job.

The capitalist is by this process deprived of successive functions. The organization of industry, i.e., Management, passes first into the hands of the workers. Next they are to assume the control of the mechanism of exchange. The capitalist retains his money capital, but since his functions as manager and purchase and sales agent will have been lopped off, he loses all shadow of a rational claim to rent, interest and profits, and the " subsequent annihilation of his (legal) claim "[2] is justified. The efforts of the capitalists to resist this " atrophy " of their functions must be rendered unsuccessful. Guild Socialist doctrine holds that the idle rich are less dangerous, and easier to cope with, than the busy rich. Hence all must be reduced to the status of idle *rentiers* and then expropriated. Such a policy of de-functionalization and confiscation will naturally impair the freedom of action, at least in the economic field, which this class now enjoys. Towards them it is a policy of force and repression. But if national wealth is augmented, if producer and consumer obtain the total benefit of industry, if millions become happier and more secure, the discomfiture of a few thousands is negligible. If this small group can find a new socially-useful occupation, the Guild Society will support them too. Subsistence on unearned increment will alone be penalized.

In some such way Guild Socialists justify the restrictions which they propose to place upon certain classes, who have hitherto enjoyed large freedom to the detriment of other classes. But in the

[1] G. D. H. Cole, *Self-Government in Industry*, p. 35.
[2] G. D. H. Cole, *Guild Socialism Re-Stated*, p. 206.

very act they show that even freedom is to them not an ultimate good, but only a means to an end. Their freedom is limited, not universal; they are not concerned about the freedom of private enterprise, nor the freedom of investment; certain liberties which have been tried they call tyrannies, because abuses have developed and defects have been made plain; the class which practised them is to be banned from the Guild State, as it was intended poets should be banned from the Platonic Republic. The Guild Revolution, like other revolutions, will free an oppressed class at the expense of the oppressors. The achievement of freedom is thus inextricably associated with material advancement, so that each appears sometimes as means and sometimes as goal.

Guild Socialism and State Socialism are hostile to one another; yet as ideas, they bear a definite relation. The State Socialist is interested in the material elements of happiness. Now, although the Guild Socialist pretends to neglect poverty for the time being in his search for the spiritual elements of happiness, the freedom which he so emphasizes constitutes really a short cut to the comfortable Standard of Life. The control he is demanding is no less than the control of the national purse strings. So far they agree. But the Guild Socialist has amplified the older Collectivist platform in order to include psychological and moral values. Moreover, a certain amount of preliminary State Socialism was required to prepare the ground for this new advance. Such measures as factory legislation, state relief, insurance, subsidized education, supplementing trade union action had to come first; they raised the level of comfort, leisure and intelligence; a large section of the working class thus developed other needs and other ambitions. Industry seethes with unrest to-day because the conditions of living have improved faster than intellectual opportunities. This condition gives Guild Socialism its chance. The mental capacities of an engineer are not exhausted with the handling of his machine, nor by his trade union membership. He is interested in the organization of his factory, he wants to add dignity and responsibility to his job, he is jealous and impatient of the management; he spots their mistakes in certain cases and longs to take a hand in the business of "running things." He is indignant at the disparities of wealth, he blames the Government for not guaranteeing him work and a decent income in return for the willingness to work. Guild Socialism undertakes to satisfy all these desires, grievances, "balked dispositions." It proposes to displace the "capitalists"—a loose word that covers employers, investors, bankers, receivers of royalties, wealthy lawyers and doctors, landowners, speculators, i.e., all the categories which to the labourer seem useless. It is going to install the socially useful class—*qua* workers in control of production, *qua* consumers in control of distribution, and *qua* community in control of the national wealth.

Before turning to the industrial democracy of the future it may

be well to review the judgments of the new democrats upon the capitalist organization of production.

The absolute authority wielded in theory by the employer, and the capitalist concept of labour as a commodity, involve the labourer in many humiliations. He is engaged and dismissed, not to suit his financial circumstances or his will to work, but to suit the financial arrangements or the whims of the employer. He is exposed to black-listing, victimization, and long stretches of unemployment due to purely impersonal causes. In consequence of these irregularities and of the rate-fixing powers of the manager and the foremen, his income is variable and often insufficient. The rank and file worker has no voice in the organization of production ; thus his personality is stifled : he becomes a cog in a machine, and industry fails to benefit from suggestions he might make for the improvement of organization. Is not this a fair statement of the Guild Socialist's, or any other Socialist's, objections to the wage system ?

Is it equally a fair statement of the facts ? Guildsmen themselves recognize that the conservative control, or rather pressure, exerted for years past by the trade unions, has produced some effect. If it had failed altogether, they would not be so hopeful of it as an instrument of success in the future. In practice, then, the conditions of employment have been modified under the eye of the unions. Some employers have even been heard to complain that they are not allowed to engage men as they please ; they must take those sent by the unions, or none at all ; they are not always permitted a free selection of applicants, even on the basis of merit. Foremen, also, are seldom the unmitigated tyrants they are depicted. Many foremen have found that propitiation produces better results than " driving " ; the threat of a strike has frequently ended the career of a tyrannical " boss." Occasionally a great industry like coal-mining devises means for alleviating unemployment due to trade depression by reduction of hours instead of dismissal of workmen, and adopts sliding wage scales which distribute profit and loss among all the factors of production. Certain firms have shown themselves ready to encourage, utilize, and reward suggestions and inventions by their employees, and have instituted welfare and works' committees to satisfy the craving for a share in organization and to create a channel for protests. Confronted by these achievements, the Guild Socialist points out that union influence in the past has been mainly negative. The union has criticized, checked, restrained the administration of an alien executive at points that brought into question fundamental policies, that touched the vital interests of the union. It has acted as an opposition party, as a brake ; but it shouldered no responsibility, discharged no indispensable functions, exercised no positive control.

At this point the Guildsman produces his constructive programme demanding that this opposition should be allowed to try its hand, and that the unions, bit by bit, should take over the management

of the factory. He predicts that the friction, which now threatens to undermine capitalism, would be eliminated, and that benefits would accrue, first, to the worker, because he could organize to suit himself; next, to the output, because of the reawakening of the craftsman's joy in his work; and, finally, to the consumer, because rent and profit would be subtracted from price. He lays his axe at the root; the State Socialist, concerned with merely "attendant evils"—insecurity and poverty—has, by tampering with these, simply shaken the stability of the system itself. Without considering whether reformism if prolonged would accomplish the collapse or the purification of capitalism, let us proceed to test the new order by its own criteria.

Undoubtedly the Guild promises improved material prospects to the worker; unemployment is largely to disappear and an adequate permanent income is to be assured to the worker, regardless of a temporary maladjustment in the market or a transient inability to work. The firstfruits of industry are to be devoted to making comfortable the active worker and the necessary labour reserve. However, it is not mainly upon these features that Guild Socialists base their case. To them the dominant evil in the world, as I have already pointed out, is not poverty, but servility.

As Mr. Cole says, in *Self-Government in Industry*, "the *idée maitresse* of National Guilds in industrial self-government . . . Control by the workers employed in it is the corner-stone of the whole edifice." The difference between the future Guildsman and the present "wage-slave" is not so much that the Guildsman is to be better clothed, housed, fed, or to enjoy better health (though these are enviable accessories), but rather that he is to be "in the full sense democratic and self-governing."

Now what is the exact meaning of Mr. Cole's terms "Self-Government," "Democracy," "Positive Control"? One notices that they are applicable alike to industry and to politics. Mr. Cole conceives a factory organized much as a town ward, and imports freely into his exposition of Industrial Democracy functions and relationships taken from a revised political Democracy. As a first step in revision, Mr. Cole rejects "consciousness of consent"; that is the hall-mark, not of true Democracy, but of the very imperfect brand in vogue to-day; he regards it as a theory that "assigns to the ordinary citizen little more than a privilege—which is in practice mainly illusory—of choosing his rulers, and does not call upon him, or assign to him the opportunity himself to rule."[1] In the light of this passage self-government would appear to require participation in executive decisions; and this interpretation is confirmed by the demand for "positive control." Since "control" connotes "influence," "check," "regulation," and "positive" is to be taken in the sense of "direct," "active," "functional"; positive control[2]

[1] G. D. H. Cole, *Guild Socialism Re-Stated*, p. 13.

[2] I think the anomaly arose in this way: In the piece-work industries it is

amounts really to "administration." From other passages in the same book one gathers, however, that a more accurate system of registering consent would satisfy Mr. Cole. "The essentials of democratic representation . . . are, first, that the represented shall have free choice of, constant contact with, and considerable control over, his representative,"[1] who is, moreover, to represent his point of view in relation to some particular function. Obviously this is very different from the self-government spoken of above, and yet from lack of further elucidation one must conclude that "the opportunity himself to rule" boils down to some efficacious form of control.

If with this slight imprecision fresh in mind one turns to the economic sphere, one wonders whether the same discrepancy exists between "industrial self-government" and "control of the factory."

What more will the new Industrial Democracy "assign to the ordinary (worker) than the privilege—in practice mainly illusory—of choosing his rulers," and how will it "call upon him, or assign to him the opportunity himself to rule"?

What fields will it subject to his "positive control"? And how will it provide for the instruction of the worker, and his initiation into new and untried functions? What machinery does it suggest for the dissemination of correct and intelligible information concerning details of industrial affairs which are remote from the worker's personal experience, and upon which he will be expected to deliver an opinion: an opinion, too, that shall compare favourably in respect to soundness with the opinion of business men and financiers, and that shall surpass theirs in ethical value?

Guild Socialist literature is all too little concerned with the problems of "how"; it is as yet mainly a literature answering the questions "why" and "what." The Guildsman looks confidently to diffused secondary and technical education and to contraction of the environment to make the problem easier. Even the modernist wing has not escaped a tinge of mediævalism in that it seeks simpli-

extremely difficult to classify managerial acts into those touching vital interests and those which, from the piece-workers' point of view, constitute harmless routine. Every change in rates, every classification of processes, the allocation of every job, closely affects the worker's income and his standard of life. In the financial adjustments occasioned by wartime rise in prices, the piece-workers in shipbuilding yards and munition factories, through their spokesmen, the shop stewards, claimed and obtained an unprecedented power of interference in these administrative decisions. Thence they extended their authority to matters of discipline, a field that was also disturbed by war conditions, for dismissal became tantamount to military conscription.

In time-rate industries control has remained throughout "negative." That is, it has been confined to general bargains and the enforcement of general standardized principles covering certain industrial conditions; chiefly hours and pay. Within the terms of the bargains a large margin of liberty was left to the employer within which he organized his factory and his processes to suit himself.

[1] *Guild Socialism Re-Stated*, p. 32.

fication of the modern world (i.e., decentralization, localization, greater self-sufficiency of small areas, a disentangling of world relationships) rather than the construction of agencies and instruments competent to cope with increasing complexity.

In examining the proposed field of control we find that " when the Guild Socialist speaks of the need for control by the producers, or when a trade union itself demands control, the reference is mainly to the way in which the factory or place of work is managed, the administrators appointed, the conditions determined, and, above all, to the amount of freedom *at his work* which the worker by hand or brain enjoys."[1] But in the large and important field of " external relations," including " quantity and quality of the goods supplied, the excellence of distribution, the price of sale,"[2] the Guild Socialist is ready to admit control by the consumer. Does he not thereby evict the factory worker from the very sphere promised to him by the phrase, " a claim to the product of industry " ? These conflicting pledges the Guildsman reconciles under a convenient formula : " In a democratic society the whole body of consumers and the whole body of producers are practically the same people."[3] But he does not consider that the control exercised by a worker through his representative on a consumers' council over the distribution of a dozen products is something very different, even supposing it can be made to amount to anything at all, from the ability to dispose of his own product at his own price. Perhaps there is good reason for not entrusting the control of the product to the producers, but it is hardly fair dealing to offer it to them with one hand and to take it away with the other.

At any rate the worker can comfort himself with the reflection that in the internal affairs of the factory he is to be part of a body that will be his own master. Let us examine the manner of his self-government a little closer. Of course each man is not to be a law unto himself, nor does he allocate to himself his favourite job, nor perform it solely according to the dictates of his own conscience. There are still to be foremen, or rather " industrial leaders," captains of the workshop, who order, direct, and economize the exuberant wills of their teams. " It is indispensable that foremen be chosen by the particular body of men with whom they are to work."[4] Now when the Guild of Builders attempted to erect a politico-industrial structure, modelled on the Guild Socialist doctrine, among the difficulties it encountered was this very question of foremanship. Unless the labour turnover is reduced to zero, a foreman soon ceases to hold a true popular mandate, since before his term of office expires he will be giving orders to different men from those who elected him. Ought he, then, to be chosen by all the masons and bricklayers within the area, i.e., elected by the union branch, that he may be acceptable to all potential employees on the job ? The Guild found

[1] *Guild Socialism Re-Stated*, p. 37. [2] *Ibid.*, p. 38. [3] *Ibid.*, p. 39.
[4] *Ibid.*, p. 57.

it expedient to appoint foremen through its executive committee, allowing appeals to the area or district councils, or to the committee itself by the trade union representative. Thus far very few cases of friction have arisen, and these have been speedily settled. At the Walthamstow Building Site, election of foremen by the men on the job has been actually adhered to, and worked very well, though even here the foreman of the works is appointed by the Guild. Walthamstow is, however, a somewhat exceptional area. While other areas have applied to the unions for men as needed, regardless of their political opinions, Walthamstow has retained the Guild Volunteer System and thus collected a large majority of ardent Guildsmen instead of a smattering of believers. They have adopted the policy of keeping a certain numerical force employed as continuously as possible, and have practically eliminated labour turnover. From the success of an experiment among a group of picked men we cannot judge how the election of foremen would operate in a Guild whose membership is non-selective and open to all comers.

We pass from foremen to the works manager, the clerical staff and technicians, in whose hands the internal administration of the factory actually rests. In small businesses the works manager and the "head of the business" may be one person, the independent entrepreneur; in large scale enterprises the works manager becomes a salaried employee of the board of directors, subject to their control —laxly exercised when things are going well—and in any event usually confined to matters affecting the dividend. Subject to the exigencies of profit-making, his powers are broad, and he has room to experiment—to introduce Taylorism, or expert accounting, or laboratories, or works councils. Consultation with the managing director and interchange of views and suggestions may vary from firm to firm, but a large amount of discretion is usually allowed to the head of each factory.

At first blush one might conclude from their political formulæ that Guild Socialists intend to dismiss the managerial hierarchy altogether, allowing the workmen to occupy the factories, as they did in Italy last year. But we cannot suppose that they would commit so egregious a blunder. They do not contemplate installing spinners or lathe-minders at roll-top desks or typewriters or microscopes. They explain that control by the workers signifies "workers by hand and brain." If one inquires, then, how the control is to be shared, one is told that Trade Unionists turned Guildsmen are to win over the clerical, technical, and managerial staffs to an alliance against the shareholders and boards of directors. Their salariat allies would then be reinstated by the workers through a democratic election. "The governing principle in the choice of Guild leaders will be election 'from below,' by those whom the leaders will have to lead . . . Whenever a post requires, in addition to personal fitness for leadership, of which those who are to be led are the best

judges, definite qualifications of skill or technique, the possession of these qualifications (i.e., a certificate from the school or professional association) can be made a condition of eligibility for the position."[1] General managers, architects, and technicians would thus be nominated by their occupational societies, subject to election and recall by their subordinates or employees. They would still retain a right of appeal to a tribunal of their " peers " and to a higher Guild Tribunal, composed of both manual and brain workers, in whom lodges the final authority.

Now it seems to me that the Guild Socialists are trying to create a fictitious homogeneity by the formula " workers by hand and brain." The two are not really equal and co-ordinate ; nor can they form a self-governing entity, for the reason that in industry the workers by hand constitute the rank and file while brain workers constitute the management, i.e., the commanders. Mr. Cole himself recognizes the stratification : if leaders are chosen " from below " there must be an " above."

According to the Guild version, managerial authority is to be conferred by a mandate from the workers, i.e., " workers by hand and brain," to one of themselves. As I see it, however, there being no single undifferentiated entity the mandate would have to issue *from* the workers by hand *to* the workers by brain, *from* the rank and file *to* their commanders. The scope of power will then depend upon the good will and discretion of those over whom it is exercised. Authority is delegated to the management, but control is lodged with the operatives, since they would be justified in a revolt against a management which failed to take their wishes, comfort, and political impulses, or even prejudices and caprices, into account.

In trying to reconcile democracy with expert leadership, to introduce the one, while safeguarding the other, the Guild Socialists have to withhold from the rank and file a portion of their promised birthright. On the other hand, they are reluctantly forced into a contradictory and unsatisfactory compromise with the present hierarchy whose technique and information they acknowledge to be indispensable. Thus they have first approached the lower ranks of brain workers who are close to the industrial proletariat, and, subsequently, the professionals, whose rewards are in the nature of pay rather than economic rent. But to the entrepreneurs, bankers, business men, whose economic position is capitalistic, although their talents and knowledge are on the whole first-rate, the Guildsmen are openly hostile. Moreover, the technical assistants whom they are willing to invite into Utopia, the Guild Socialists propose to utilize according to the convenience of a workers' democracy, not in accordance with their own aspirations and their own conception of " freedom at work." It is thus apparent once more that " freedom " means simply the freedom of some, the freedom of those whom the Guild Socialists wish to make free.

[1] *Guild Socialism Re-Stated*, p. 53.

Industrial Democracy, as finally portrayed by Mr. Cole, is not self-government in the sense that all the workers, whether typists, mechanics, or machine-tenders or statisticians, participate in every administrative decision. They do not each and all "have the opportunity to rule." If they expect democracy as Mr. Cole first defined it, they will be disappointed. On the other hand, Mr. Cole has tried to give them what he conceives to be the best instrument of a political democracy: a voter's control over a representative whose functions are specific and are supposed to lie within the scope of the voter's interests and experience. It remains to be seen whether industry offers a hopeful analogy with politics: whether the industrial worker is competent to select and control the business entrepreneurs.

Even in politics the ballot-box is coming into increasing disfavour. Mr. Cole himself alludes to the futility of elections as at present conducted, and to the incompetence of the general politician to deal with the many and varied problems that may crop up during his term of office. Their diagnosis and treatment demand specialized skill. Guild Socialism fails to take into account that the best methods we have found for obtaining such services are appointment or competitive examinations, and that the worst is a popular election. The tendency towards sub-division of issues and specialization of treatment are less, and not more conducive to popular control, since the lay citizen finds the criteria for an adequate judgment growing more incomprehensible and more inaccessible. As Mr. Lippmann points out,[1] the wise man is he who "knows he does not know" and resigns himself to the tutelage of the expert; the dangerous man is the one who "doesn't know that he is uninstructed."

It is one thing to hold an election in a constituency of co-equal experts; it is quite a different thing to set up the constituency of the expert among the rank and file. Guild Socialism is not quite clear which of these two things it is doing. Moreover, were the rank and file to exercise a veto or recall over the administrators solely upon the grounds of their agreeableness as commanders, it might prove harmless. It has never been made plain whether this criticism is to extend to the technical merits of the professionals as well. Those who criticize political yet advocate industrial democracy rely upon greater familiarity with the issues and upon a certain amount of technical knowledge among the rank and file. This surely points to a meticulous supervision by the constituency quite compatible with the closer relationship between voter and representative which Mr. Cole desires.

The Sankey Coal Commission decided that for the function of criticism and joint control a definite technical qualification was necessary. Consequently, the possession of a manager's certificate was made the condition of eligibility to the Pit Committee. Mr. Straker, the miners' representative, believed that a choice of ten

[1] Walter Lippmann, *Public Opinion*, p. 307.

qualified miners could be found at each pit. Even so, the relation between the committee and the rank and file remains a problem. In the attempt to bring responsibility home to each individual they have only succeeded in enlarging the administrative staff by ten, of working class origin and technically qualified by training or experience. The untrained coal-getter remains as distant as ever from administrative power. Only upon non-technical questions—amenities, hours, wages, etc.—can he hope for a telling voice, unless he is to become a dangerous meddler in issues that he is unqualified to judge. I take it that Industrial Democracy, aspiring to true democratic control of the distributive and financial as well as productive sides, refuses to limit itself to the sphere of "working conditions." Hence we must face the consequences of the entrance of the unqualified voter into fields where expert qualifications appear of the greatest importance.

We must further ask whether the technical and managerial professions will submit to this form of control. And it remains further to be learned whether the bungling which we have thus far achieved through democratic methods in politics would not prove fatal to the necessary degree of productivity in industry. For industrial methods must "produce." A democracy may survive, because, however inefficient, its members are somehow content. Can a democratically managed industry survive, if it functions no better? To this point I shall recur, for it is of fundamental importance.

In the first place, ought not an industrial democracy consisting of two partners to consider equally the aspirations, interests, competency of both? If the trade union looks upon the salariat as an indispensable ally, it must offer an attractive bid for alliance. We must not forget that the two are only just beginning to approach one another and that the mere assumption of "identity of interests" without serious testing is no basis for lasting and harmonious co-operation.

The Guild ideal of co-operation of all grades in community service makes a fine appeal; during the war, emotional appeals, crystallized in slogans, drives, and the call for "self-determination," were extraordinarily effective. But with the complications of peace, the revival of specific grievances, the clash of interests, it is becoming increasingly difficult to smooth over a rift with fine phrases, to maintain a coalition, to cement an alliance. If divergencies exist, they will out; they cannot be exorcised by phrases.

And so the works manager, the civil engineer, the clerk, will fall to comparing the position offered him under the Guild with that which he occupies to-day under the capitalist. He will compare salary, freedom in work, scope for ambition, dignity of position, and he will weigh gain against loss, and opportunity against restriction. And his conclusions may vary according to whether he belongs to the upper or the lower ranges of the salariat.

If the operative is to be safeguarded against managerial oppres-

sion, is not the manager equally entitled to be protected against incompetent interference from below? Does he gain or lose freedom by exchanging the control of a board of directors for the control of a works council? We get a glimpse of the shape such control would take in the evidence given before the Sankey Coal Commission by the miners' representative:

"The manager would have to report to his pit (or works) council as he has now to report to his managing director, but that pit council would probably play a part that the managing director does not, *insomuch as they would assist him by their advice and suggestions.*" In cases of deadlock, Mr. Cole contemplates deposition or recall. Thus supervision and interference, instead of being infrequent and unusual, become normal, whether periodic or incessant. Add to this the reduced income, the control which the Guild will possess over all jobs and avenues of advancement, and the outlook is not one calculated to attract those who, having been most successful under the existing system, have attained high, independent positions.

The London Guild of Builders presents a situation which may at any time prove a test case. A group of really energetic leaders placed in executive positions by the unions have been able to run things pretty much according to their own ideas. The ruling spirit is Mr. Malcolm Sparkes. Managerial initiative has tactfully steered its way around the conservatism of the trade union board and has avoided coming to grips with the theory of democratic control. Should an insoluble difference of opinion arise, either the unions would recall the official, or the doctrine of popular sovereignty would be overridden, and the independence of the management would be asserted.

Now the Guild Socialists are in part relying on an unmistakable tendency in modern industry: namely, the substitution of a specialized expert consulting staff for the single entrepreneur. Business decisions, as Professor Taussig remarked, are becoming standardized. A technique of analysis and synthesis is replacing the shrewd guess and the bold venture; a systematic routine for the diagnosis and solution of a problem is being developed. Precisely how such functionalization will help Guild democracy I do not perceive. It is inconceivable that in highly technical industries, like engineering, the expert leaders will submit to workshop control any more eagerly than will the administrators of a more "omni-competent" type in the building industry. Neither will, without a fight, surrender his position and his judgment to those of sub-ordinates, whose training and function are entirely different from his own.

Guild Socialists are thus confronted by a dilemma: augmenting the authority of the experts diminishes the scope and significance of self-government; widening the range of popular control hampers and irritates the leaders—may lead to their withdrawal from the Guild (even if they ever consent to enter it) and to their setting up

competing industries. Even if a level of adjustment between the two parties could be reached, the success of a system of responsibility, at once divided and collective, depends also upon its safety and efficiency.

Where the two conflict, Guild Socialists incline to the belief that democratic activity is *per se* a greater good than efficiency or output. Of course a combination is highly desirable and the Guild Socialists try to persuade themselves that democracy is not necessarily incompatible with efficiency. "The key to real efficiency," says Mr. Cole in *Self-Government in Industry*, "is self-government." No one denies that government with the consent of the governed, consultation with employees on questions related to their welfare, in short all efforts made to enlist the sympathy and co-operation of the working force, promote efficiency. But this is far from "industrial democracy." If Industrial Democracy went no further than this, it would amount to little more than a medley of Whitley Councils, welfare schemes and labour directors. In such an event no fundamental conflict between efficiency and democracy could possibly develop. But Industrial Democracy contemplates a different situation—a situation which may raise precisely this question. The rank and file must exercise important functions, must think and act and have a voice in important decisions. They will exercise these functions and participate in these decisions through the election and recall of managerial officials. Wise use of these powers will require knowledge, judgment, and objectivity. But apart from the difficulty of stimulating thought and action in any democracy, the Industrial Democracy will have to think and act on certain lines of technical excellence hitherto dictated only by experts ; a lapse from existing standards of efficiency cannot be compensated by moral values. If, then, the choice between self-government and efficiency must be made, Mr. Cole proposes to sacrifice efficiency ; but can modern society exist on those terms ?

I have already referred to the fallacious analogy with politics. A political democracy can afford a period of wasteful apprenticeship ; it has many aims ; it accomplishes some of them more or less well ; and it survives if, on the whole, nothing better is obtainable without too much trouble of one sort or another. As compared with the varied reasons for which nations choose or abide by their political forms, an Industrial Democracy must first meet a single crucial test ; it can, therefore, experiment only within a narrow margin, and the penalties of blunder or failure are far more severe. Political inefficiency does not paralyse the life of a nation as would the deterioration of production. While legislatures filibuster, departments wrangle, and officials grow rich on graft, trade goes on prospering, output increases, wages rise, or the reverse takes place, independent of political processes. Governmental inefficiency and corruption are a handicap to a nation, chiefly because they render the State unfit to regulate impartially the economic life, but they

do not bring that life to a standstill. The failure of an Industrial Democracy to maintain and gradually increase national productivity would have far more serious consequences, in that the standard of life of every member of the community would fall as the national dividend declined.

The chief weakness, then, in the Guild structure appears to me to lie in the relationship between brain and manual workers. The Guild Socialists have not formulated this relationship either quite clearly to themselves or quite frankly to the workers. The starting point of Guild Socialism was an impulse to dignify and enrich the status of the industrial worker. Soon it was realized that the trade unions were not fitted to assume the entire responsibility for the conduct of industry; an alliance with clerical and technical associations was welcomed; the term "worker" had expanded to include "brain-worker." Guildsmen are reluctant to realize that a further expansion is needed. Sentences like the following: "The Guild must choose men who are capable of replacing the capitalists and professionals of to-day, to whom a high degree of business capacity cannot be denied,"[1] prove that they still incline towards the discredited and, in part, disowned project of workers' management. But it will little benefit the future Guild to seek alliance with the lower orders of the salariat, repel the higher, and utterly reject the independent entrepreneur. The Guild stands only to lose by driving the best brains of capitalism into competition with itself. If the Guilds are really to play a big rôle in industry, they must not exclude and fight the capitalists—they must absorb them.

The Guild must choose, then, between developing a technical and managerial class by a slow process of education from the rank and file, and inviting technicians and organizers into its fold. The objection to the former course is that management is a full-time job, requiring on the whole different qualifications from manual work; a man cannot continue at his trade and simultaneously supervise a department, survey a new field of development, or express an expert opinion concerning a foreign contract. A hierarchy is bound to develop, nor can admission thereto be limited to recruits of working-class origin. Of course, executive talent found in the ranks must be promoted; of course, liberal facilities for technical training must be created; but even so the day when Labour can expect to match the existing technical and administrative staffs with its own body of experts is far distant. Vaguely realizing this, the Guild has chosen the second course; but its offer to the salariat is not tempting. The "freedom" and "self-government," which fell so sweetly upon the ears of the factory operative, are now meaningless; for the expert will be less free, not more; he will have less "self-government," not more. In truth, the two classes cannot be addressed in one tongue. To the workers, "self-government" means stepping into the shoes of the managers; what is "self-government"

[1] *Self-Government in Industry*, p. 216.

to the expert or manager? His function is to co-ordinate and govern the activities of the units of industry. Were these units to become self-regulating or self-sufficient his function would disappear. The works manager gains a dubious freedom when he exchanges the control of his board of directors for that of his own employees. A managerial staff, dependent upon election, subject to criticism, interference and recall by committees assuming equal knowledge, superior judgment and the right to act merely upon likes and dislikes, might find itself in an impossible situation; the potential disquiet might be fairly comparable with the present discontent, and the stimulus to production might well prove less effective than "payment by results."

If the Guild Socialists have failed to design a plausible structure to accommodate the interests of Labour and the functions of management, one must search yet further for the panacea.

The terms of the problem are (1) the elimination of friction, and (2) the improvement of the operative's status. Conceivably, friction might disappear were one party elevated to supremacy and were the other party too helpless or too ignorant to interfere. But modern industry has progressed beyond pure autocracy. The workers' power, intelligence and command over facts are growing. Moreover, the Guild Socialist does not propose to hand over the control of industry to the "brain workers." He tries to make room for the intellectual progress of the Trade Unionist while at the same time retaining a professional management.

The alternative of a settlement on the lines of strict self-determination is ruled out because Labour's remuneration cannot be dissociated from the plans made by the management.

To escape from the impasse an accord must be reached between Labour and Management upon the social purposes of industry. A philosophy which treats production as a social service, somewhat as Medicine and Law have come to be treated, must permeate the body of producers and consumers. To the dissemination of such a philosophy, Guild Socialists have contributed a splendid effort. The State Socialists have also contributed, and so has the Labour Co-partnership Association. There is a meaning large enough to encompass all their divergent activities and antagonisms. They are all seeking a reasonable basis of production. When pieced together their ideal spells fair remuneration to the producer, ample scope for ability wherever found, liberal training to make the most of natural talent, fair distribution of product, due consideration to the wants and purses of the consumers. The National Guilds League champions the intellectual aspirations of the worker; the Labour Co-partnership Association maintains the social utility of the entrepreneur; the Fabian Society emphasizes the distribution of the product.

An alliance of any two economic factors would probably be able to carry the day for any one theory. But economic reform will be unstable until all three have acquiesced and found legitimate satis-

faction. Of course the interpretation of " legitimate " will be hotly contested in each case, and only as the majority succumb to persuasion of the rationality and desirability of philosophical tendencies, will the new order evolve—through many compromises and half-victories over vested interests.

As Utopians approach concrete measures they will have to realize that for the performance of every social function some waste is, in the nature of things, inevitable, whether it take the form of profiteering, corruption, governmental extravagance or inherited fortunes. The problem is to minimize it. Finance and accumulation are social functions because indispensable to society. Financiers and investors cannot be abolished. Their function must be rationalized, defined, fitted to the actual needs of society.

Management cannot be abolished. It must be rationalized, organized to serve a useful purpose with the minimum of friction and lost talent.

Labour is an eternal factor. It is no mere puppet. It has wants, ambitions, a growing intelligence that must find an outlet. In America this outlet has in the past been through the channel of individual promotion and rise in position. In England classes are more fixed, opportunities fewer, and the average level of working-class education perhaps higher, thus increasing the pressure. An entire class is striving to better its status, not isolated, able individuals. Working-class solidarity has developed so far that to drain off surplus ability into the ranks of the capitalist or even professional class would prove impracticable. On the other hand, the workers when averaged out are inferior to the task of management or ultimate control throughout industry. What they might be equal to, however, would be to furnish a Labour contingent on the managerial staffs, representing the interests and aspirations of the workers. Co-partnership ought to be recognized as a legitimate *right* and not as an occasional act of grace. It ought to be demanded by the Unions as the easiest channel for negotiations with individual firms, not held out by employers as an anti-Union bait. The question is, can employers be brought to realize that consultation and co-operation with Labour in Management is in the long run more conducive to output than bargaining with an implacable antagonist? Can Labour and its supporters be brought to realize that adequate representation and a share in the existing form of management would benefit them more, materially and intellectually, than the crushing assumption of complete responsibility? Cannot the Consumers insist upon amicable co-operation instead of either a Workers' or an Employers' autocracy, both of which the public necessarily dread?

A further channel for the utilization of executive ability in the ranks of Labour could be provided in the shape of numerous small scale enterprises managed by workers; such are the Guilds, which are now being organized in a number of trades. As Labour's

training increases and further capacities develop, these nuclei may expand into large competing industries, perhaps into monopolistic National Guilds. They will prove their own worth and efficiency step by step, not plunge existing industries into confusion in the attempt to assume responsibilities to which Labour is as yet unequal.

Labour's strategic importance derives from two facts: (1) industry cannot yet dispense with man power; (2) the working class forms a large proportion of the consuming public. But there are still large strata outside the working class which do perform socially useful functions. A movement which plays upon Labour's social and economic position to arouse class hatreds, and to establish the supremacy of Labour, falls into the ancient error of exalting a part above the whole, and into the youthful error of over-estimating its own capacities.

Some Recent Geographical Literature

By Mrs. H. Ormsby,
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Recently a certain educational journal, in reviewing a geography book, complained that the author had "sacrificed imagination to truth!" It is to be feared that there is quite a large section of the public that is not satisfied with the plain scientific treatment of a subject, but demands colour and emotion as first essentials. Naked truth makes it feel cold. There are some "hungry sheep" that *prefer* "wind," and it is being provided for them in plenty. No doubt this is a reaction from the dull and meaningless *factiness* that characterized the instruction dealt out to the last generation. None the less one is glad to find that the geographical world is waking up to the danger that is threatening its prestige, and Professor Brigham's thoughtful article on "Problems of Geographical Influence" (*Annals of the Association of American Geographers*, Vol. V, pp. 3-25) is an honest attempt to grapple with the problem of defining the meaning of the term "Geographical Influence" and the scope of the work of the "human geographer."

The Association of American Geographers is publishing, in its *Annals*, work of real distinction. Until comparatively recently the geographical work turned out by the United States has been mainly the work of geologists. It has followed on the heels of the geological survey, and has therefore had a strongly physiographical bias. This sound physical basis is an essential foundation for the building up of the fabric of human geography, and American geography is fortunate if, as Professor Brigham suggests, it is the physiographers who are becoming converted to the study of geographical influences on man. A leaven of trained scientific minds is very salutary in view of the alternating rashness and vagueness of some of the exponents of "Geographical Influences." The preposterous claims of some of them merit Professor C. Redway Dryer's likening of them to the small boy who defined the earth as "a ball filled inside with dirt and worms, and covered all over the outside with nothing but geography." A dreary conception!

Nevertheless, as Professor Brigham points out, the geographers are by no means the only, nor even the worst, sinners—except we argue that the greater the profession the greater the sin. The historians, the economists, the anthropologists, the sociologists—they are perhaps the worst—and the archæologists are all in the same box. It would be quite easy to quote passages that would probably shock even the authors if they read them in cold blood. Nevertheless, the enthusiasm that may lead to this kind of excess

is a good thing, and after all every new movement has its wild enthusiasts and its charlatans.

Two recent works, both able and well worth reading, are *The Upper Silesian Question*, by Sidney Osborne, and a more recent study of the "Industrial Triangle" by M. Pierre Dumas, *Le Partage de la Haute-Silésie*, in *Annales de Géographie*, Jan., 1922, pp. 1-14. The one aglow with red-hot partisanship, bubbling over with righteous indignation, full of misstatements and self-contradictions, backed up by very sorry argument, but an impressionist work of real value containing much excellent geographical description, finds a useful complement and corrective in the Frenchman's cold, concise statements and clear maps.

And here a word of warning to young geographers: Beware of the man who is afraid to commit himself to an honest map, the geographer who, after wallowing in a tangle of words and figures, suddenly emerges with an "it is obvious, therefore, that . . ."

The use of maps is the acid test of the geographer, for the geographer's function is to study distributions, and the map is the natural way to express distributions. By his maps ye shall know him. If he "knows his job" he will use maps to make clear and sum up his arguments. If he does not, his maps will give him away at once, and his readers will know where they are. If he fails to use map illustrations he has probably not consulted reliable sources, in which case he fears that his maps may reveal his ignorance, or he has consulted them and fears that they may reveal his duplicity. Yet one must in charity remember that an absence of maps may indicate not the depravity of the geographer but the parsimony of the editor or publisher. There is nothing like the preparation of a map for clarifying one's thoughts and purging one's mind of prejudices and misconceptions. Mr. Osborne could hardly have accompanied a map showing the "Industrial Triangle" nicely balanced on the low plateau divide between the Oder and Vistula basins by his statement: "Thus the Oder, with its tributaries which water the Silesian plain, seems to fix the natural limits of the country in a manner which defies all attempts to mutilate them," and a sketch-map showing the distribution and output of the United States and German coalfields would have prevented him from making the following utterly false analogy: "The Upper Silesian coalfields play as great a part in the economic and, in the light of our argument, the political unity of Germany, as do the coalfields of Pennsylvania in the economic and political unity of the United States; and if an American will only picture to himself what it would mean for the United States to lose the coalfields of Pennsylvania, he will gain some idea of what the similar loss of the Upper Silesian fields would mean to Germany."

A very valuable contribution to Geography, also from the States, is Miss Semple's series of Mediterranean studies.[1] One is a survey

[1] *Annals of the Association of American Geographers*, Vols. V, IX and XI.

of the four well-known breaches in the mountain boundary of the Mediterranean basin. This is followed by an article on Ancient Mediterranean Forests, and one on Geographical Factors in the Ancient Mediterranean Grain Trade. Miss Semple's personal knowledge of the Mediterranean regions she describes enables her to correct a number of common misconceptions with regard to Mediterranean conditions, and she has utilized the stores of information gleaned in her wide reading to give a wonderfully clear and vivid review of the main historical incidents in which the four natural passageways played significant rôles. On the anthropological side, Mr. Harold Peake's book on the *English Village*,[1] makes very interesting reading. The first part of the book has very little to do with either England or villages, but it does give a useful summary of the theories of a modern school of anthropology with regard to the migrations of man in Europe. Mr. Peake's cheerfully dogmatic way of tracing peculiarities of mind, manners and temperament exhibited by his fellow-men back through the ages to habits acquired in the infancy of their respective races, is fascinating but a little dangerous. It sets one to the stealthy scrutiny of the shape of one's neighbour's skull and other peculiarities, both physical and temperamental, and has been known to cause serious ruptures even in the family circle. The second part of the book is of more interest to the historian and sociologist than to the geographer. The plans, showing different types of villages belonging to different periods and adapted to different geographic conditions, are very interesting.

Finally, there is a book just out which deals definitely with the economic side of geography, *The Business Man's Geography*, by E. G. R. Taylor.[2] This book claims to give "a succinct account of the position as regards industry and commerce in every part of the globe, together with such geographical facts as have a direct bearing on the subject." In addition an attempt has been made "to show how matters are tending and to emphasize future potentialities as well as actual conditions." Considering the enormous difficulties of the task undertaken the author is to be congratulated on a very fair measure of success. The main fault one has to find with the book, which is a kind of regional encyclopædia of geography, is that there seems to be no principle adopted with regard to the dates for which statistics are given, so that the measuring of imports and exports in values, as the author usually does, has little or no significance, especially as the dates chosen are very often those during which conditions were quite exceptional—1916-17 for instance.

[1] *The English Village*, by Harold Peake. 1922. Published by Benn Brothers.
[2] *The Business Man's Geography*, by E. G. R. Taylor. Published by George Philip and Son Ltd. Price 25s. net.

School Notes

Students

The total number of regular or full-time students enrolled for the session 1922-3 up to the end of December was 781, of whom 297 are working for the B.Sc. (Econ.), 267 for the B.Com., and 55 are research students working for higher degrees, such as the D.Sc., Ph.D., and M.Sc. There are, in addition, 1,070 occasional or part-time students, making the total of all students attending the School 1,851. There are 309 foreign and colonial students, representing over thirty nationalities.

Examination Successes

The degree of D.Sc. (Economics) was conferred in November upon Robert MacGregor Dawson.

Forty-three students were successful in the Final (Honours) Examination in October for the degree of B.Sc. (Econ.). Of this number six obtained First Class Honours. Five students obtained the Pass degree. Three students of the School who, for various reasons, took the Final Examination as external students were successful, and one of these, R. D. Richards, was the only external student to obtain First Class Honours, and was awarded the Gladstone Memorial Prize for 1922. One student of the School appeared for the Final Examination in Arts and passed with Third Class Honours in Geography.

The first Final (Part II) Examination for the degree of B.Com. was held in September, and twenty students of the School were successful in obtaining the degree.

Medals, Prizes, and Studentships

The Hutchinson Silver Medal, awarded annually for excellence of work done in research, has been awarded for 1922 to Dr. T. E. Gregory.

The Gladstone Memorial Prize, awarded annually on the results of the School's special Intermediate Examination in Economics, was this year won by Mr. E. B. Bein.

Rosebery Prizes (offered annually for the best monographs embodying original research presented in the department of railway transport) have been awarded for 1922 as follows: First Prize (£25), Mr. E. J. Budd (S.E. and C. Railway). Second Prize (£10), divided between Messrs. L.R. Sim (G.W. Railway) and A. A. Harrison (N.E. Railway). Special Prize (£10), Mr. W. E. Green, B.Com.

A School Research Studentship for post-graduate work, of the value of £175 for one year, has been awarded to Mr. F. C. C. Benham,

a student of the School, who obtained the degree of B.Sc. (Econ.) with First Class Honours in October.

Mr. T. P. Cowell and Mr. B. M. Lindsay Fynn, B.Com. students, have been awarded Company Scholarships by The Worshipful Company of Cutlers.

Sir Ernest Cassel Travelling Scholarships have been awarded to the following Commerce students: F. C. James, D. E. Naish, H. K. Williams, W. Wright; and a Sir Edward Stern Scholarship has been divided between M. E. Megrah and an external student.

Public Lectures

(Given under the auspices of the University of London)

The Stansfeld Lecture on "The Competition of the Sexes for Employment" will be given by Professor Graham Wallas, Litt.D., M.A., on Friday, February 16th, 1923, at 5 p.m. The Chair will be taken by Lady Barrett, M.D., M.S., B.Sc. Admission free by ticket.

A course of three lectures on "Political Developments in India, from 1920 to 1922" will be given by Sir William Vincent, K.C.I.E., K.C.S.I., Member of the Council of India, on Thursdays, March 1st, 8th, and 15th, 1923, at 6 p.m. At the first lecture the Chair will be taken by the Right Hon. Lord Meston, K.C.S.I., LL.D. Admission free, without ticket.

A series of five lectures on "Statistics: Before, During, and After the War" will be given during the Lent Term on dates to be announced. The lectures will deal with the following subjects: "Income and Wages," by Sir Josiah Stamp, K.B.E. "Prices," by Mr. A. W. Flux, C.B., of the Board of Trade. "Population," by Mr. S. P. Vivian, Registrar-General. "Food," by Sir Henry Rew, K.C.B. "Shipping," by a Lecturer to be announced later. Admission free, without ticket.

Lectures Recently Arranged

A course of eight lectures by Sir Halford Mackinder has been arranged on "Changing Geographical Values." The lectures will be held on Wednesdays at 5 p.m., beginning January 24th. The fee for the course is 12s.

War Memorial

The Memorial to the Students of the School who fell in the Great War will be unveiled by Sir William Robertson, G.C.B., G.C.M.G., K.C.V.O., D.S.O., on Thursday, January 25th, 1923, at 5 p.m. Relatives of such students are invited to apply to the Secretary of the School for tickets of admission to the ceremony.

Books Received

H. A. Silverman : *The Substance of Economics.* Pitman and Sons Ltd.
P. Banerjea : *Fiscal Policy in India.* Macmillan and Co.
R. H. Soltau : *French Parties and Politics.* Humphrey Milford.
W. F. Ogburn : *Social Change.* B. W. Huebsch, Inc.
B. G. de Montgomery : *British and Continental Labour Policy.* Routledge.
L. D. Edie : *Principles of the New Economics.* Harrap.
R. M. Joshi : *Indian Export Trade.*
F. Tillyard : *The Worker and the State.* Routledge.
H. Dalton : *Principles of Public Finance.* Routledge.

Periodicals Received

Annuaire de la Pologne.
Journal of Indian History.
Political Science Quarterly.
Zeitschrift für Volkswirtschaft.
Bulletin de la Statistique Générale de la France.
Giornale degli Economisti.
La Riforma Sociale.
Bombay Co-operative Quarterly.
The Irish Economist.

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BULLETIN

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BIBLIOGRAPHIES:

CAIRNES, JOHN ELLIOT: 1823-1875. (No. 3, July 1913).
CAPITAL LEVY (Conscription of wealth). (No. 8, Oct. 1919*; *included also in* No. 20, Nov. 1922).
CHAMBERLEN, HUGH, the elder, physician and economist. (No. 6, April 1914).
CHANNEL TUNNEL. (No. 4, Oct. 1913,* *and, additionally,* No. 9, Feb. 1920*).
CHILD, Sir JOSIAH, Bart.: 1630-1699. (No. 14, May 1921).
CITIZENSHIP (Civics). (No. 12, Nov. 1920).
CIVIL SERVICE. (No. 2, April 1913).
DEVOLUTION. (No. 10, May 1920).
INDUSTRIAL COUNCILS ("Whitley Councils," etc.) No. 13, Feb. 1921).
MARKETING. (No. 15, Aug. 1921).
NATIONALISATION OF THE COAL SUPPLY. (No. 1, Jan. 1913; *included in* No. 9, Feb. 1920*).
SECOND CHAMBER THEORY & PRACTICE. (No. 7, July 1914).
STATE MEDICAL SERVICE. (No. 5, Jan. 1914).
TRADE BOARDS (United Kingdom). (No. 18, May 1922).
TRAVELLERS' DESCRIPTIONS OF GREAT BRITAIN. (No. 16, Nov. 1921).
UNEMPLOYMENT (since 1908). (No. 17, Feb. 1922).
WELFARE WORK. (No. 11, Aug. 1920).
WORKMEN'S COMPENSATION. (No. 19, Aug. 1922).

ARTICLES:

DONATIONS TO THE LIBRARY.
EDWARD FRY LIBRARY OF INTERNATIONAL LAW: Classification Schedule (No. 12, Nov. 1920); *and,* Notes on (Nos. 11, Art. "Donations," and 12, August and November 1920).
INDEXES IN THE LIBRARY. (No. 11, August 1920).
TOBACCO LITERATURE. (Note on a collection in the Library). (No. 2, April 1913).

The London School of Economics & Political Science

(UNIVERSITY OF LONDON)

HOUGHTON STREET, ALDWYCH, W.C. 2

1. FACULTIES AND COURSES.—The School provides instruction in the Faculties of Economics, Laws, Arts and Science. It registers students for the degrees of B.Sc. (Econ.), B.Com. LL.B., and B.A. with Honours in Geography and Sociology, and offers special facilities for research to students proceeding to the degrees of M.Sc. (Econ.), D.Sc. (Econ.), LL.D., D.Lit., Ph.D., and M.Sc. in Anthropology. It also provides courses for the Academic Diplomas in (i) Geography, (ii) Sociology and Social Science (in conjunction with the Ratan Tata Department), (iii) Journalism (in conjunction with other institutions of the University). The lectures and classes are open also to those who have not matriculated and do not wish to pursue a full University course.

2. EVENING STUDENTS.—One of the main features of the School is the provision of evening courses by the same teachers as lecture during the day. Complete evening as well as day courses are provided for the degrees of B.Sc. (Econ.) and B.Com.

3. FACILITIES FOR RESEARCH.—The School is one of the largest centres of "post graduate" study in the United Kingdom. The work of the Research Department is carried on by means of (i) individual supervision of students, (ii) Seminars or special classes, and (iii) the Library. The method of utilising the British Museum, the Public Record Office, etc., is explained.

The Author of the Wealth of Nations

By courtesy of Messrs. A. & C Black Ld.

Adam Smith, 1723 and 1923

By Dr. J. Bonar.

We are told that nothing will serve in science but the blackest ingratitude ; we must bow to no other authorities than arguments ; we must forget our own people and our father's house. It seems inhuman to forget the first makers of our arguments ; and the hardest worker among us will not be losing time if he commemorates Adam Smith on his 200th birthday, on or about June 5th, 1923. He became a literary person of consequence with his *Moral Sentiments*, 1759, and might have expected at least a *succès d'estime* with the *Wealth of Nations*, 1776. He obtained a great deal more than that, even in his lifetime, ending on July 17th, 1790. Biographers give a series of elegant extracts about the book from contemporary opinion, beginning with David Hume's "Euge, belle!" and ending with the words of Robert Burns : "I could not have given any mere man the credit for half the intelligence Mr. Smith discovers in his book" (Letter to Graham, May 13th, 1789, *apud* MacCulloch, *W. of N.*, xii). This is spoken with the breadth conceded to poetry. Of statesmen, Fox stood aloof, but, curiously enough, was the first to refer to the book in the House, 1783. Pitt and Grenville rose up before him as their master, and Shelburne (Lansdowne) was close behind them (Rae's *Life of Adam Smith*, 153, 289, 405). "What an extraordinary man Pitt is ; he understands my ideas better than I do myself" is a rather strange dictum of the master preserved by Addington (Rae, 405).

Pitt's Treaty of commerce with France, 1786, part of the general pacification of 1783 after the American War, owed its liberal features to the influence of our hero. The speech of Pitt in defence of it (Feb. 12th, 1787) would be read by the master with pleasure. For example, Pitt says of the Treaty : "It certainly had at least the happy tendency to make the two nations enter into more intimate communion with one another, to enter into the same views even of taste and manners ; and, while they were mutually benefited by the connection and endeared to one another by the result of the common benefits, it gave a better chance for the preservation of harmony between them, while, so far from weakening, it strengthened their sinews for war" (*Speeches*, ed. 1808, I, 250). Cobden framed his Treaty of 1860 under the same inspiration and amidst similar difficulties at home, happily with better fortune from the state of the times (Morley, *Life of Cobden*, ch. xxxi, xxxii). More than ten years before Pitt, Lord North's Budget had profited by Adam Smith, in the raising of the Malt Tax and in the imposing of the House Duty (Rae, 320). The disciples sometimes improved on the

master. Bentham (it is said) made him give up his defence of Usury laws. The youngest student knows that he left not a few heresies unrecanted. It would be ungracious on his birthday to reproduce the list. They are not to be explained away ; the surprising fact remains that he has lived them all down, as Shakespeare his puns and anachronisms. " The middle-aged (wrote Henry Cockburn, of Old Edinburgh) seemed to me to know little about the founder of the science, except that he had recently been a Commissioner of Customs, and had written a sensible book. The young, by which I mean the liberal young of Edinburgh, lived upon him. With Hume, Robertson, Millar, Montesquieu, Ferguson, and De Lolme, he supplied them with most of their mental food " (*Memorials*, 1856, p. 46). He has certainly survived Robertson, Millar, Ferguson, even De Lolme ; and over the civilized world in Japan, the United States, France, and Germany, as well as in his own country, he continues to be the starting point, though perhaps never the terminus, of economic and political thinking to successive generations of students.

Why is he virtuous ? Why do people love him ? Where does his great strength lie ?

Garnier, his French translator, 1802, thought it lay in the first two books ; he saw in them the fundamental basis of theory ; the other three books were illustration. This is the easiest view ; but our author is so little bound by his own subdivisions that we often feel it quite possible the theory is only there to prepare the way for the illustration.

The general subject is the nature and causes of the wealth of nations. The opening books treat of the nature of wealth and, in broad outline, the causes that make for the increase of it. The first of them deals with the productive powers of labour and the distribution of its produce. Strong emphasis is laid on the principle that the unrestricted extension of the market for goods by increasing the division of labour increases the wealth of the great body of the people, whether in neighbouring countries of the same nation or in the larger fields, the nations of the earth as a whole. The second book deals with the nature and accumulation and employment of stock, including capital, the same principle of liberty being shown to be a public benefit here also. The historical sketch (in the third book) of the different progress of wealth in different nations, with the reasons for the difference, forms a connecting link with the later books. His tone is becoming warmer as he draws near his own time. In the fourth book he deals with the systems of Political Economy other than his own. The Mercantile was no doubt a loose body of opinions. The Agricultural was a settled system, presented by the French Economists in treatise after treatise, advocating a liberty of trade like his own and therefore handled very gently. Not so the other. Call it system or only loose body, it is in his view a public mischief, presenting the worst forms of privilege and obstruction. This is no other than the monster Protection, now supposed extinct

in Britain, but in our hero's time so strong that he thought its extinction a Utopian dream. He "worries" its multitudinous taxes and rates and regulations with the zest of hereditary familiarity. The Mercantile principles had controlled foreign trade and colonial policy, and his judgment on them concludes the fourth book and ushers us peacefully enough into the fifth with its view of the State and its Finances, "the revenue of the Sovereign or Commonwealth." Here, for the most part, he thinks imperially and reasons cogently. Very Scotch and very British, he is the candid friend of his country; and, though he defends the navigation laws from reasons of defence, it is from no fear of telling unpopular truths. He is nothing if not critical, whether on the church or education, taxation, public debt, or the American colonies, then (1776) absorbing all interest. He ends with a pious wish for a legislative union between Britain, Ireland, and the American colonies, and with an obvious despair of its fulfilment.

In which parts of this book lies the chief attraction? The theoretical part, little as it may impress us now, after all impressed Malthus and Ricardo, who were made economists by it. Yet John Mill would never have said of Adam Smith what he said of Ricardo (on Value) that in any branch of theory whatever he had left nothing for future inquirers to do. Ricardo, who died just a century ago (Sept. 11th, 1823) and deserves a share of this celebration, was a far nearer approach to a model theorist. It is not for his theory that our hero is read now; it is not even for his style, in which he does not rival Burke or Gibbon. The satire of Junius was more caustic, and Junius is more seldom read. "Smith teaches us how to think," was said of him at the Club. After a century and a half the *Wealth of Nations* is still read, and most of its readers would admit that the later books of it have a greater fascination than the earlier. The later, too, are occasionally vulnerable in their theory; even the Canons of Taxation have been pronounced by daring critics uncanonical. Adam Smith had never heard of Socialism; has no vision of a Labour problem; finds the unemployed after a great war (1763) easily absorbed (100,000 out of, say, seven millions); he can give us but scanty materials for a judgment on a Capital Levy. He is "of an age" in that his examples from current facts and events are a great part of his book. Mill counts this to him for righteousness as constituting an "application to Social Philosophy," after which Mill himself aspired in 1848. It involves at least a picture of the times, and instead of lessening our interest in the writer it creates in us an interest in the writer's times down to their most curious and ephemeral details. In the ordinary sense he was certainly not (what he said of Necker) "a mere man of detail." But his method may be described as spade-work in argument; he has a Socratic habit of pursuing the minute and commonplace aspects of a demonstration, and supporting them by the homeliest facts nearest to hand. Instead of simply planting a

truth in our souls, as if he said (like Thrasymachus in the *Republic*), "Take it or leave it," he insinuates it into our minds by slow degrees, each step firm ; his opponent "struggling to be free is more engaged." Thus it is true of him above other writers that he not only teaches economics, he makes economists.

His age was not ours and he cannot help us by direct forecasts. We must apply his methods for ourselves to our own difficulties. He foresees the probable ruin of all the great nations of Europe through their public debts (V, iii), but, though they are far more enormous and oppressive now than in his day, we may quote against him his own saying after Saratoga, when Sir John Sinclair had said to him "England is ruined" : "There is a great deal of ruin in a nation" (Rae, 343).

Yet, like Burns (*loc. cit.*), we should "covet much to have his ideas respecting the present state of some quarters of the world, that are or have been the scenes of considerable revolutions since his book was written."

Adam Smith on Twentieth Century Finance

By Professor Edwin Cannan.

Adam Smith, who produced his great work at the very late age of fifty-three, did not grow old rapidly, but we can imagine that at two hundred he might have been a little stiff and unable to appreciate at their full value some of the later developments of economics. We can picture his somewhat contemptuous tolerance of "the very ingenious speculations of Mr. Jevons, Mr. Marshall, Mr. Edgeworth and others, who have introduced a sort of algebra or geometry into the science of political economy. The followers of that system are very numerous; and as men are fond of appearing to understand what surpasses the comprehension of ordinary people, the cypher, as it may be called, in which they have concealed, rather than exposed, their doctrine, has perhaps contributed not a little to increase the number of its admirers. While it has been of scarce any service to the statesman and has done little to provide either a plentiful subsistence for the people or a sufficient revenue for the sovereign, it has at least given rise to much thought and speculation among the youth at the universities, more especially at that of Cambridge, which in my time was sunk in a torpor, no less profound, I believe, than that of Oxford." He might, perhaps, have doubted whether the adoption of this part of education by women tended, like every part of women's education in his day, "evidently to some useful purpose; either to improve the natural attractions of their person, or to form their mind to reserve, to modesty, to chastity and to economy; to render them both likely to become the mistresses of a family, and to behave properly when they have become such." (*Wealth of Nations*, Vol. II, p. 266.) But at the present juncture it is less interesting to compare the pure science of the *Wealth of Nations* with that of the *Economics of Welfare*, than to ask what Adam Smith might have to say about twentieth century post-war finance.

"They whom we call politicians," he told his Glasgow students, "are not the most remarkable men in the world for probity and punctuality. Ambassadors from different nations are still less so. . . . The reason of this is that nations treat with one another not above twice or thrice in a century, and they may gain more by one piece of fraud than they lose by having a bad character. . . . Wherever dealings are frequent, a man does not expect to gain so much by any one contract as by probity and punctuality on the whole, and a prudent dealer who is sensible of his real interest would rather choose to lose what he has a right to than give any ground for suspicion. . . . When the greater part of people are merchants, they always

bring probity and punctuality into fashion, and these therefore are the principal virtues of a commercial nation." (*Lectures*, pp. 254-5.)

There is a good deal in this. How pleased Smith would have been to hear that the City approved of the payment of our American debt, and that it was improbable that the less commercial nations would ever fulfil similar obligations! He might perhaps have remembered a passage close to the end of the *Wealth of Nations :*

" The last war, which was undertaken altogether on account of the colonies, cost Great Britain upwards of ninety millions. The Spanish war of 1739 was principally undertaken on their account ; in which, and in the French war that was the consequence of it, Great Britain spent upwards of forty millions, a great part of which ought justly to be charged to the colonies."

If the Americans, he might have argued, had long been a commercial nation, they would, perhaps, have reckoned up these sums at compound interest and insisted on setting the resultant sum against the present British debt. As they are only beginners, this much could scarce be expected of them.

No accounts of debtor and creditor would have been necessary if his scheme for giving the colonies representation in " the states-general of the British empire " proportionate to their taxation had been adopted. He does not seem to have thought the scheme very practicable, but only " not perhaps improper " to be suggested " in a speculative work " like the *Wealth of Nations*. (Vol. II, p. 419.) More thorough-going than any modern advocate of " Imperial Unity," he was prepared to face a removal of the seat of imperial government from England to North America as soon as the North American taxation should become equal to the British, which he thought likely to happen by about the present time :

" Such has hitherto been the rapid progress of that country in wealth, population, and improvement, that in the course of little more than a century, perhaps, the produce of American might exceed that of British taxation. The seat of the empire would then naturally remove itself to that part of the empire which contributed most to the general defence and support of the whole." (Vol. II, p. 124.) Great Britain having lost the doubtful chance of being part of the " extensive empire " of North America, which, he said, " seems very likely to become one of the greatest and most formidable that ever was in the world " (Vol. II, p. 122), he would doubtless have adhered to his alternative policy that she should " endeavour to accommodate her future views and designs to the real mediocrity of her circumstances." (Vol. II, p. 433.)

He would take a gloomy view of the present problem of national debts. Even in 1776 they were " enormous," and he says they " oppress and will, in the long run, probably ruin all the great nations of Europe " (Vol. II, p. 396), forgetting what he is said to have once remarked, " there is a great deal of ruin in a nation." His description of the way in which debt is incurred is quite up to date.

On the outbreak of war, he says, modern governments "are both unwilling and unable to increase their revenue in proportion to the increase of their expence. They are unwilling, for fear of offending the people, who by so great and so sudden an increase of taxes, would soon be disgusted with the war; and they are unable, from not well knowing what taxes would be sufficient to produce the revenue wanted. The facility of borrowing delivers them from the embarrassment which this fear and inability would otherwise occasion. By means of borrowing they are enabled, with a very moderate increase of taxes, to raise, from year to year, money sufficient for carrying on the war, and by the practice of perpetual funding they are enabled, with the smallest possible increase of taxes, to raise annually the largest possible sum of money." (Vol. II, p. 405.)

The return of peace brings little reduction of taxation, since all or most of the addition imposed during the war is now required to pay interest on the additional debt. If a sinking fund is created, it is always wholly inadequate, and almost always diverted to pay for some new expense:—

"During the most profound peace, various events occur which require an extraordinary expence, and government finds it always more convenient to defray this expence by misapplying the sinking fund than by imposing a new tax. Every new tax is immediately felt more or less by the people. It occasions always some murmur, and meets with some opposition. The more taxes may have been multiplied, the higher they may have been raised upon every different subject of taxation; the more loudly the people complain of every new tax, the more difficult it becomes too either to find out new subjects of taxation, or to raise much higher the taxes already imposed upon the old. A momentary suspension of the payment of debt is not immediately felt by the people, and occasions neither murmur nor complaint. To borrow of the sinking fund is always an obvious and easy expedient for getting out of the present difficulty. The more the public debts may have been accumulated, the more necessary it may have become to study to reduce them, the more dangerous, the more ruinous it may be to misapply any part of the sinking fund; the less likely is the public debt to be reduced to any considerable degree, the more likely, the more certainly is the sinking fund to be misapplied towards defraying all the extraordinary expences which occur in time of peace. When a nation is already overburdened with taxes, nothing but the necessities of a new war, nothing but either the animosity of national vengeance, or the anxiety for national security, can induce the people to submit, with tolerable patience, to a new tax. Hence the usual misapplication of the sinking fund." (Vol. II, p. 406.)

The modern apologists who assert that a national debt is a fine thing and ought not to be reduced, because people who own it can borrow on the security of their holdings, would get short shrift from Adam Smith if we are to judge from the manner in which he treats

the author who had represented the public funds " as the accumulation of a great capital superadded to the other capital of the country, by means of which its trade is extended, its manufactures multiplied, and its lands cultivated and improved much beyond what they could have been by means of that other capital only." If the owner of an annuity in the public funds borrowed capital on the credit of his annuity, that capital " must have existed in the country before and must have been employed as all other capitals are " (Vol. II, p. 410). And to say that when the debt is held inside the country, all is well, because it is the right hand paying the left, and the money does not leave the country, is an " apology founded altogether in the sophistry of the mercantile system " and, besides, ignores all the inconveniences of raising money by taxation (Vol. II, p. 412). " It ought to be remembered that when the wisest government has exhausted all the proper subjects of taxation, it must, in cases of urgent necessity, have recourse to improper ones " (Vol. II, p. 414).

When the national debt is large, it is seldom or never " fairly and completely paid. The liberation of the public revenue, if it has ever been brought about at all, has always been brought about by a bankruptcy ; sometimes by an avowed one, but always by a real one, though frequently by a pretended payment." (Vol. II, p. 415.) The " pretended payment " was a payment in a depreciated money, and the " most usual expedient " known to Smith was a " raising of the denomination of the coin," i.e., legislation making existing coins legal tender for larger amounts of the money of account than before. This he regarded as less mean than the expedient of reducing the fineness of the coin: " A simple augmentation is an injustice of open violence, whereas an adulteration is an injustice of treacherous fraud," and therefore excites much greater " fury and indignation." The more modern method of depreciating the currency by excessive issues of inconvertible legal tender paper-money, Adam Smith does not formally include, though it had already, as he knew, been evolved by the governments of the American colonies, some of which, he says a few pages further on, " like that of Massachusett's Bay, advance upon extraordinary emergencies a paper-money of this kind for defraying the public expence, and afterwards, when it suits the conveniency of the colony, redeem it at the depreciated value to which it gradually falls. In 1747 that colony paid, in this manner, the greater part of its public debts, with the tenth part of the money for which its bills had been granted." (Vol. II, p. 426.)

No matter what expedient is adopted, an open and avowed bankruptcy is better than a pretended payment in a depreciated currency which extends the calamity from the creditors of the public to the creditors of private persons, and is really worse even for the public creditors, as they are generally creditors of private persons as well as of the public.

" A pretended payment of this kind, therefore, instead of

alleviating, aggravates in most cases the loss of the creditors of the public ; and without any advantage to the public, extends the calamity to a great number of other innocent people. It occasions a general and most pernicious subversion of the fortunes of private people ; enriching in most cases the idle and profuse debtor at the expence of the industrious and frugal creditor, and transporting a great part of the national capital from the hands which were likely to increase and improve it, to those which are likely to dissipate and destroy it. When it becomes necessary for a state to declare itself bankrupt, in the same manner as when it becomes necessary for an individual to do so, a fair, open, and avowed bankruptcy is always the measure which is both least dishonourable to the debtor, and least hurtful to the creditor. The honour of a state is surely very poorly provided for, when, in order to cover the disgrace of a real bankruptcy, it has recourse to a juggling trick of this kind, so easily seen through, and at the same time so extremely pernicious.

" Almost all states, however, ancient as well as modern, when reduced to this necessity, have, upon some occasions, played this very juggling trick " (Vol. II, p. 416).

The Romans, Smith believed, reduced the As by three stages to one-twenty-fourth part of its original value. What would he have said of the Austrian Government paying off debt in crowns reduced to one-thirteen-thousandth of their old gold value ?

Reform of the House of Lords and the Government Resolutions of 1922

By H. B. Lees-Smith, M.P.

The conclusion of the Bryce Conference on the Reform of the House of Lords (see Economica, October, 1922) was followed by the appointment of a Cabinet Committee to examine the subject. The Cabinet adopted certain proposals which were put before the House of Lords as a series of government resolutions on July 19th, 1922, and debated for several days. As this is the latest official plan for dealing with the subject an examination of it will bring the survey of the question up to date.

The scheme is contained in five resolutions, of which the first three define the system on which the new Second Chamber is to be built up. They are as follows:

"1. That this House shall be composed, in addition to Peers of the Blood Royal, Lords Spiritual, and Law Lords, of—

(*a*) Members elected, either directly or indirectly, from the outside.

(*b*) Hereditary Peers elected by their order.

(*c*) Members nominated by the Crown, the numbers in each case to be determined by Statute.

"2. That, with the exception of Peers of the Blood Royal and the Law Lords, every other member of the reconstituted and reduced House of Lords shall hold his seat for a term of years to be fixed by Statute, but shall be eligible for re-election.

"3. That the reconstituted House of Lords shall consist approximately of 350 members."

The objections to the new scheme from the Conservative point of view were fully brought out in the House of Lords debate, and consisted of two main criticisms. The first is evident if the resolutions are compared with the discussions of the Bryce Conference. They are framed so as to avoid a reply to any of the questions that must be answered by all proposals to reform the constitution of the House of Lords. How are the members elected from outside the existing peerage to be chosen? The answer is that they shall be elected "either directly or indirectly." This reply includes any or all of the plans laid before the Bryce Conference and leaves the question where it was before the Conference began. What proportion are the members elected from the existing peerage to bear to those elected from outside? To this question, upon which the whole character of the assembly depends, the resolutions give no reply. For how long a life is the Second Chamber to be elected? The Government

answer is, "For a term of years to be fixed by Statute." These are feeble results after the Bryce Conference had held fifty meetings, House of Lords Reform had appeared three times in the King's speech and a special Cabinet Committee had sat upon the problem for months.

The remaining subject with which the resolutions deal is the power which the newly-constituted Second Chamber is to possess when it comes into conflict with the House of Commons. The Bryce Conference gave the greater part of its time to lengthy discussions upon this subject and finally arrived at a novel solution based upon a series of Free Conferences between the two Houses. The Government passed this scheme over and decided that, for ordinary measures, the Second Chamber should retain the powers that it at present possesses under the Parliament Act. For these measures, therefore, it would have the power arising from the fact that if it disagrees with the House of Commons over a Bill, that Bill can only become law if it is passed by the other House in three successive sessions, covering a period of at least two years.

The deep disappointment that this provision created in the House of Lords constituted the second ground of attack. The peers who were most active in the Bryce Conference had throughout regarded the question of the powers to be granted to the new House of Lords as the major issue in the whole problem. The solution of this question reconciled them to proposals for a drastic revision of its constitution. The Government, however, proposed to carry through the revision of the constitution, but to evade altogether dealing with the problem of the power of the reconstituted Chamber. The resentment at this method of treating the subject was summed up in Lord Selborne's observation: "If real power, such as Lord Bryce's report had laid down as essential, were given to this House, I would vote for great and drastic reforms in its constitution; but if we are to be put off with a sham, then I will have nothing to do with wrecking the ancient constitution of this House."[1]

The House as a whole was not so uncompromising as Lord Selborne, but the reception of the proposals was so frigid that they did not generate sufficient motive power to force them through any very hostile demonstrations from outside.

This is important as, when we turn to look at the scheme from the popular point of view, it becomes clear that fierce resistance would be aroused as soon as they left the quiet waters of the House of Lords. As the democratic objections to the scheme were not brought out in the House of Lords debates, it is necessary to give them careful consideration.

The argument for a Second Chamber has for years been based upon the claim that, properly constituted, it is the ally and not the opponent of the public will. Lord Peel, in introducing the Government resolutions, rested them upon this doctrine by explaining that

[1] House of Lords, July 19th, 1922.

the new Second Chamber was not intended to oppose the *people* but " to oppose *the House of Commons* when that House did not respect the settled opinions of the people."[1] Accepting this as the theory of the Second Chamber, the likelihood that the new House of Lords will act upon it can be judged by a simple test. Is it so constituted as to fulfil its rôle with equal justice to the different opinions in the State? If it becomes a mere instrument of party warfare, never refusing passage to vital measures from the Lower House when its own party is in office and taking every opportunity to obstruct the measures of the opposing party, it will increase instead of correcting any distortion of the public will.

How does the new House of Lords meet this test? It is to be made up of two main elements—elected members and a section of hereditary peers selected by their order. We cannot predict what will be the alignment of parties in the coming generation, but we may be sure that the order of hereditary peers will select supporters of the party or of parties of the " right " rather than of the " left." The result is bound to be that the block of hereditary peers will permanently " weight " the Second Chamber against the more advanced parties. The degree of this bias will depend upon the proportion of hereditary peers to elected members. But as a moderate party majority is as potent as a large one—and often more potent—the new constitution creates a House of Lords that will be as open as the existing one to the charge of acting on all vital measures as a mere party instrument.

The fourth resolution deals with the new method of defining what is a Money Bill. It carries out, with a slight modification, the recommendations of the Bryce Conference, and takes the decision as to what constitutes a Money Bill out of the hands of the Speaker and rests it in a joint committee consisting of seven members chosen by each of the two Houses, together with the Speaker as Chairman.

> " 4. That while the House of Lords shall not amend or reject Money Bills, the decision as to whether a Bill is or is not a Money Bill, or is partly a Money Bill and partly not a Money Bill, shall be referred to a Joint Standing Committee of the two Houses, the decision of which shall be final. That this Joint Standing Committee shall be appointed at the beginning of each new Parliament, and shall be composed of seven members of each House of Parliament, in addition to the Speaker of the House of Commons, who shall be *ex-officio* Chairman of the Committee."

This proposal was discussed in a previous article on the Bryce Conference (ECONOMICA, October, 1922), and the conclusion was reached that such a committee would be more partisan than the Speaker. A glance at the composition of the Committee reveals in whose favour this political partisanship is likely to be shown. The two Chambers are to have the same number of representatives on the

[1] House of Lords, July 2nd, 1922.

Committee, but since, as has been shown, the Second Chamber will have a permanent bias to the " right," the final result must be that the Committee will be weighted in the same direction. The actual degree to which this will happen will depend upon the size of parties in the two Chambers, but, since a majority of one is as effective as a majority of any larger size, the Committee will become a new obstacle to the popular forces in the nation. This resolution gives the House of Lords a power that it has never before claimed.

The fifth and last resolution remains. The British constitution has never yet included provisions insisting that Bills on certain selected subjects must only be passed by means of special machinery. The opposite practice is embodied in the constitution of the United States—where Bills proposing to alter any part of the constitution can only be passed by means of a number of special processes. Such provisions involve as a consequence that the Courts of Law can be evoked to declare that certain Bills have been passed in an unconstitutional manner and to practically repeal a Statute. Parliament in this country had hitherto been saved from the confusion and sterility invoked in this interference by authorities external to itself. The fifth resolution proposes that this shall now be altered.

> "5. That the provisions of the Parliament Act, 1911, by which Bills can be passed into law without the consent of the House of Lords during the course of a single Parliament, shall not apply to any Bill which alters or amends the constitution of the House of Lords as set out in these Resolutions, or which in any way changes the powers of the House of Lords as laid down in the Parliament Act and modified by these Resolutions."

This resolution betrays a lack of sense of proportion. A provision —such as that in the United States—putting special obstacles in the way of every change in the constitution is arguable, although it has been generally condemned for this country. But this resolution does not make such a proposal. The Crown, the Church, the House of Commons, the Civil Service, the Judiciary, every organ in the State, except one, are to continue to take their chance under the existing system. The House of Lords alone is picked out for special protection by the provision that no Bill affecting it can be passed except with its own assent.

This claim to an unprecedented privilege must be coupled with another fact. The absolute veto that the House of Lords would thus obtain over Bills concerning itself was in its possession until the passing of the Parliament Act. But there was a fundamental difference between the position then and the position as this resolution would leave it. In times of crisis, the constitution contained a safety valve by which, in the last resort, the resistance of the House of Lords could be overcome. This was the power of " swamping " the right of the Crown, acting on the advice of the Prime Minister, to create sufficient new peers to ensure the passage of the Bill that was

in dispute. It was only by the announcement that the Crown would exercise this right that, in the great crises of the Reform Act of 1832 and the Parliament Act of 1911, the House of Lords was forced to give way to the will of the people. But for this power the country would undoubtedly have been plunged into revolution at least once during the last century. The Government resolutions now propose to break this weapon. The third resolution, as has been seen, limits the numbers of the new House of Lords to three hundred and fifty, and the power of creating new members, therefore, cannot be used in any future crisis over their position.

The democratic case against the plan is evident. The New House of Lords will be permanently weighted against the popular forces in the State, it will have rights over the definition of Money Bills that it has never claimed before, and its constitution and powers will be entrenched behind defences permitted to no other body in the State. A proposal that is open to such criticism as this would arouse long resistance which could only be overcome if there was great determination behind this scheme, but it has created little enthusiasm in the House of Lords itself. The conditions necessary for survival do not, therefore, appear to be present, and the resolutions have added one more to the list of abortive reform schemes that the House of Lords has discussed.

The Effect on Trade of Funding the Floating Debt

By A. R. Burns.

"1922 was a stick-in-the-mud year," and by the end of it there were many who were secretly only too thankful that they had been able to stick. For such unpleasant memories as the year left, blame has had to be distributed. In most circles, provided we do not press for too much explanation, deflation is agreed to have been the villain of this bad play with a not pleasant enough ending. It has also been said that the Treasury backed up the villain and thus jeopardized the chance of a happy ending which, in fact, did not materialize. This charge is based on the action of the Treasury in 1922 in taking the opportunity, afforded by low money rates then ruling, to fund part of the floating debt. The result of such action is said to have been to reduce purchasing power, restrict orders, increase unemployment, and generally to deepen the economic gloom. But even this, according to the exponents of this view, has not measured the full extent of Government folly, for while, with one hand, industry was being thus held down, with the other it was being encouraged to rise again by the offer of trade facilities. With the aid of the guarantees provided under the Trade Facilities Act, traders were enabled to borrow funds at a lower rate than would otherwise have been possible, and, in the spending of the funds, were enabled to give those orders of which trade and the million unemployed workers in the country were in such dire need. Thus it is said that there were being pursued at the same time policies calculated both to depress and to encourage trade.

These views were most clearly and completely expressed by Mr. McKenna in his annual speech to the shareholders of the London Joint City and Midland Bank on January 24th last, when he went to considerable length to explain the effect of the retirement by the Government of Treasury Bills out of the proceeds of a new issue of Treasury Bonds. But neither the explanation nor the conclusion is convincing. He assumes that a customer who has a sum of £10,000 to his credit with his bank, decides to withdraw the deposit and invest it more profitably in the Treasury Bonds being issued by the Government. When this decision is acted upon, the bank parts with £10,000 in cash, but reduces its liabilities to its customers (deposits) by the same amount. We may assume, for the sake of clearness, that the same bank holds a £10,000 Treasury Bill, which is retired by the Treasury out of the £10,000 paid for the Treasury Bond. The bank has now received back its £10,000 in cash and

its cash resources are restored to the old level, but its holdings of bills are reduced by £10,000. Thus the two transactions taken together have reduced the bank's deposits by £10,000 and the Treasury Bills which, amongst other assets, it holds against these deposits, by the same amount. That transactions of this kind have been considerable during 1922, particularly during the first half of the year, appears from the balance sheets and monthly statements of the principal banks.

The bank in question has now the same cash reserve as before, but has smaller liabilities. The general practice of the banker is to re-lend a fairly fixed proportion of the amounts lent to him by customers (deposits). He will find that, as these deposits have been reduced without any corresponding reduction in the amount held by him " in reserve," the *proportion* kept in reserve is rising. Realizing that an increasing proportion of the funds lent to him are lying idle, and that good dividends shed a warm glow over the annual meeting, he will seek to invest such a sum as will reduce his proportion of reserve to the proportion which he has, for the time being, decided to keep. It may be noted in passing that the amount thus freed for investment will not, of course, be equal to the total amount withdrawn by the customer and used to pay for the Treasury Bonds, but only that proportion of the sum withdrawn which the banker has been in the habit of keeping in reserve, i.e., in the case of most banks at the present time about 16½ per cent. Mr. McKenna has anticipated this argument that the banker will be enabled to lend out part of his reserve, and replies that " the immediate use made by a bank of its surplus cash is to lend it to the money market. With additional resources available, the discount brokers and other customers of the Bank of England are able to pay off loans borrowed from that bank," and thus " loans from the Bank of England are paid off and bank cash is reduced." Accepting, for the moment, this explanation as the correct one, the Bank of England will find that its liability on " Other Deposits " has fallen and that the asset, " Other Securities," has been reduced by the same amount, while its cash resources remain unchanged. The Bank of England is, therefore, in the same position as the joint stock bank ; the proportion of funds lent to it by its customers, and remaining uninvested, is rising. If the bank pursues a policy of endeavouring to raise this ratio of reserves to liabilities, or of permitting it to rise, then credit will be restricted by the calling in of the loans. The greater difficulty of obtaining loans, together with the tendency to falling prices which will follow, will react adversely on trade. It is important, however, to be quite clear that the depression will be due, not to the action of the Government in replacing Treasury Bills by Treasury Bonds, but to the action of the Bank of England in restricting credit.

If, however, the Bank of England is making no effort to increase its proportion of reserves and, while some loans are repaid, others are being granted, a new borrower or seller of securities obtains the

use of the funds repaid to the Bank of England and can use them as a basis for orders which will assist trade.

Reverting now to the statement that the funds released for investment would be lent on the money market, there is no reason to assume that this would necessarily be the case. It is equally likely that a considerable proportion of these funds would be invested in short-dated securities or loans to customers. It is of interest, therefore, to turn to the changes which actually took place in 1922, as revealed by the balance sheets of the principal banks. From a summary of nine of these balance sheets, we find that the total deposits were reduced during the year by about £127,000,000. On the other side of the balance sheets the changes which took place were :

	Increase.	*Decrease*
	(£ millions).	
Cash, Notes, Balances at Bank of England and cheques in course of collection		15·8
Money at call	2·0	
Investments	39·7	
Discounts		130·2
Loans and Advances		22·7
	41·7	168·7
Net Decrease	£127,000,000	

From this it will be seen that the proportion of deposits retained in reserve by the banks remained, on the average, almost constant. (It increased from 16·4 on December 31st, 1921, to 16·6 on December 31st, 1922.)

The fall in discounts is probably almost entirely due to the fall in the holdings of Treasury Bills, and, assuming that it is entirely so, if we substitute " about £130,000,000 " for £10,000 in the example taken above, the conditions of that example apply to the past year ; for both deposits and Treasury Bills have been reduced by about the same amount. The banks have also called in loans to the extent of some £23,000,000. This sum, together with the amount freed from reserve by the reduction in deposits, was available for investment. Of this total amount of about £44,000,000 available, the banks have added only £2,000,000 to " money at call," while about £40,000,000 has been added to " investments." It appears, therefore, that Mr. McKenna was not justified in his statement that the reserve freed by the reduction in the deposits would be lent in the money market. The effect of thus adding to the investments held will be to place the ultimate sellers of the securities purchased in funds, which we may reasonably assume that they do not propose to leave with their bankers but to spend.

It is also argued that if no Treasury Bonds had been offered, the

investor would either have subscribed to some new issue of debentures or shares, or would have purchased existing government or other securities. The £10,000 would then merely have passed to the seller of the security, and would still have been available to spend and encourage trade. It might appear that in this case the extent of the encouragement to trade might be the full amount of £10,000 withdrawn, and not the smaller amount kept in reserve against this by the bank, as in the last case. When the sum of £10,000 is withdrawn, however, and the bank parts with an equal sum of cash, it will be forced, if it is to maintain its proportion of reserve, to realize some of its investments or to call in loans to bill brokers or customers. While the customer is investing the whole £10,000, the bank is partially neutralizing his action by selling securities or calling in loans. In the end, the quantitative result in this case will probably be much the same as before.

We must also remember that the Government is not the only borrower who has been anxious to convert a floating into a funded debt. No one seems to raise objection to companies making public issues with the object of paying off bank loans, and we have not been unaccustomed during 1922 to reading prospectuses in which it appears that " the issue is being made to repay sums due to the company's bankers and to . . ." The effect of subscribing to such an issue would be that the company making the issue would now be able to repay part of its indebtedness to its bankers, and, if both the company and the investor keep their accounts at the same bank, the net effect will be a reduction of £10,000 in deposits (due to the withdrawal by the investor) and a similar reduction on the other side of the balance sheet of " Loans due from customers." Again the bank will find that its reserve ratio is rising and will proceed to invest part of its reserve as in the case when the Treasury Bill was repaid.

We emphasize, therefore, that in all cases where floating debt is funded in the way above suggested the effect is merely to replace direct lending to the Government or the company which has been trading on overdraft, for indirect lending through the banker.

In the case of the Treasury Bills, until funding operations were proceeded with, the short loan fund of the London Money Market was maintained at a large amount, but the excess over trade requirements was lent to the Government. The reduction of the amount of the fund, accompanied by a reduction in the amount lent to the Government therefrom, would, if the reduction were forced, at a time when the existing level of prices necessitated the use of all the bank balances then existing, cause a fall in prices due to the reduction in the amount of purchasing power under the control of individual depositors with the banks. Such an enforced reduction might be effected by levying taxation to provide funds for the repayment of some or all of the Treasury Bills outstanding.

During 1922 no such forced reduction of any considerable amount

was made, but persons having control of bank deposits, encouraged by the terms upon which Treasury Bonds were offered for sale, responded and voluntarily withdrew their deposits, as in the case of the hypothetical customer above, for investment. The operation is based, therefore, upon the existence of a number of persons who are both able and willing to withdraw considerable sums from their banking accounts. Their willingness is not difficult to understand in view of the increased income offered by the investment. The fact that they are able to reduce their bank balances in this way, without disturbing their financial arrangements, is of more interest, and may be due to a number of general causes. Firstly, the customer may be saving out of his income, and if so, the encouragement to trade is only such as he might himself have given had he chosen to exercise his purchasing power himself, instead of transferring it to a borrower. As, however, before the withdrawal can take place the savings must have accumulated and tended to increase the deposits of the saver, the mere withdrawal of the increase will not help to explain the general reduction in bank deposits. If the savings are applied to the funding of a floating debt then the encouragement to trade was given when the proceeds of the Treasury Bill or bank loan were originally spent. Secondly, an individual may be enabled to make such an investment by the fall in prices which has occurred. He may find that, as a result of this fall, the amount of money which is necessary to finance his personal, or his trade, transactions is less than it was before the fall, i.e., the effects of a previous fall in prices are still working themselves out. In this case the investment represents a withdrawal of a portion of the currency rendered superfluous by the lower level of prices. The holder of claims payable in money, which has appreciated in value, invests the profit resulting from this appreciation, but this profit is set off by the losses of those liable to make fixed payments in money. While in some cases debtors will be able to meet these losses by saving, in others they may be compelled to sell securities and thus partly neutralize the effect of the investment by the creditors. Finally, in some cases such investment may be due merely to trade stagnation which is rendering it unnecessary to retain so great a portion of resources in liquid form. Surplus funds are temporarily invested in such a form as to be realizable in times of good trade. At a time when the customers of banks anticipate an early fall in the rate of interest, they scan their pass-books with a view to deciding how much can be spared for investment now that a smaller balance is required to finance their normal transactions. There is probably a tendency to take a somewhat Spartan view of the more immediate future in the endeavour to secure investments offering a good income while there is yet time. This tendency probably somewhat intensified last year's movement to reduce bank deposits.

The cause, however, of the reduction in deposits was, either directly or indirectly, falling prices.

We conclude, therefore, that funding operations do not result in the public being invited " to invest their savings in a way which deprives trade of its natural stimulus," and that they do not adversely affect trade.

There is, however, one aspect of funding operations which may become of interest to the banker if the funding policy is pursued and trade at the same time fails to recover. He may find that, while the supply of Treasury Bills is falling, the supply of Trade Bills is not increasing sufficiently rapidly to keep him supplied with bills. This point, however, is not yet of urgent importance.

The Problem of Chinese Currency

By L. L. T'ang (Thung Liang Lee).

I

INTRODUCTORY

A total lack of system and an unparalleled confusion have been, until recently, characteristic of currency conditions in modern China. Germany a century ago, with its numerous coinages, each circulating in its own principality, was called the paradise of the money-changer, but that was simplicity itself in comparison with China.

Silver and copper circulate independently of each other, without any fixed ratio between them, and their exchange rate only depends on their value as commodities in the market.

The standard coin is the copper "cash," which in theory is worth one-thousandth of a tael of silver. But in practice the exchange value of these copper coins fluctuates to an extraordinary degree. A tael may be worth as little as 800 "cash" or as much as 1,800 "cash," when actual coin is handled. It is the recognized medium of exchange in retail transactions and even in wholesale business in the larger part of the interior of China. In the treaty ports and large towns the use of silver is now predominant in wholesale transactions. Silver as currency has been established very gradually, during a régime of paper money under the Yuan and Ming dynasties, in spite of the opposition of the Government. And, although in 1367 the Ming Emperor T'ai-tsu attempted to prohibit the use of silver as currency, since he regarded it as the cause of the failure of his paper money, it came into extensive use during the subsequent reigns of the Ming Dynasty.[1]

The principal unit of account at present is the Chinese ounce or tael of silver, equivalent to $1\frac{1}{3}$ ounces avoirdupois.[2] It is not a coin, but a fictitious weight of silver of a certain degree of fineness. The taels used in different parts of the Empire vary from each other in weight, in fineness, and in value, anything from 1 to 10 per cent.

[1] From the Wen Hsien T'ung K'ao (*Encyclopædic Researches*) published in 1321 by Ma Tuan Lin, the classical authority on the History of Chinese Currency. An authorized continuation of the Wen Hsien T'ung K'ao brings the history of currency down to modern times. Quoted by Dr. Wei Wen-Ping in *The Currency Problem of China*, N.Y., 1912, from the original Chinese version; cc. I and II.

[2] It is expected that after the completion of the Chinese National Mint at Shanghai, which is to produce uniform and unvarying national dollars for the whole of China, the tael as a unit of account for foreign commerce and silver bullion as a medium of exchange, will be entirely abolished and the national dollar substituted therefor.

One cannot, therefore, speak of a single standard of value in China, as there are more than 100 different kinds of tael.[1] And often in some cities there are even several kinds of tael current.[2]

The taels which are in most general use are the following :

1. *The Haikwan or Customs Tael.*—All duties levied by the Maritime Customs are calculated in this tael, which is a purely arbitrary standard of currency, not used for commercial transactions of any other kind. In theory it is a pure silver tael, the equivalent of Mexican $1.50. This tael weighs about 583·3 grains of silver 1,000 fine. In fact, it is entirely a money of account ; duties, as a matter of fact, being paid in the local currency of the port at a rate of exchange settled by the Customs Authorities.

2. *The K'up'ing, or Treasury Tael.*—In this, under the Manchus, all Government taxes and dues, other than Customs Revenue and those paid in kind or in copper " cash," were calculated. In theory it was uniform throughout the Empire. (Normal paying weight= 573·9 grains 1,000 fine, but the receiving rate is 1·5 grains heavier.)

3. *The Tsaoping*, or *Shanghai Tael.*—This is the tael in general use in Shanghai, in which foreign exchange rates are quoted by the banks. The weight is 545·25 grains 980 fine.

There is one other tael worth mentioning, although it is even more fictitious than the others, viz., the *Newchwang Tael.* (Weight=555·1 grains 992 fine.) It is really a system of a debt and credit carried on by local merchants at Newchwang through the medium of the Ku Fang. Cash does not actually circulate, in fact, is not required until the quarterly settlement days, when all balances are supposed to be adjusted in silver. If the debtor fails to make a settlement of his indebtedness on the fixed dates, the debits are carried over and interest at the rate of 4 per cent. per quarter is charged by the creditor. This is therefore something like the Bankguilder from 1622 till the end of the eighteenth century (1791-5) of the old Amsterdam Bank of Exchange, which fictitious bank money became the unit *par excellence* for international trade, as it was the only

[1] Mr. H. B. Morse, in his book, *The Trade and Administration of China*, London, 1921, p. 174, states that he has in his possession notes of 170 well-recognized and different currencies collected from the treaty ports and their immediate vicinities.

[2] H. B. Morse, *op. cit.*, pp. 164-5, gives a typical instance of the confusion of these different kinds of taels. In the town of Chungking with 300,000 inhabitants, in the province of Szechuan in the far west of China, there are in addition to twelve current taels, varying from 548·9 to 562·7 grains, others connected with commodities; e.g., dealings in salt are settled by a tael of 556·4 grains, unless it is salt from the Tzeliu well, in which case the standard is 557·7 grains. A transaction in cotton cloth is settled with a tael of 555·0 grains, but for cotton yarn the tael is 556·0 grains, and for raw cotton the tael is 547·7 grains. Now comes the fineness of the silver with which payment is made. Three qualities of silver are in common use : " fine silver " of 1,000 fine, " old silver " about 995 fine, and " trade silver " between 960 and 970 fine, and payment may be stipulated in any one of these three qualities. So that, taking the score of current tael-weights in combination with the three grades of silver, we have at least sixty currencies possible in one town.

unchanging unit among the ever-increasing quantity of debased coinages in circulation.[1]

As the tael is not a coin, wholesale business transactions have to be liquidated in "*Sycee*" (=fine silver) or in dollar coins, the process of which entails elaborate calculations.[2]

Sycee is used in large native transactions in the form of ingots or *shoes*. The *shoes* range in weight from ½ to 100 taels, but generally speaking they average about 50 taels in Shanghai, the average fineness being 916·66. After the silver has been cut into *shoes* at the melting house, these are sent to be tested at the office of the Kung Ku, or public valuers. The fineness is estimated and the premium or superiority, together with the exact weight, is marked in ink ("chopped").[3]

In ordinary cash transactions in the treaty ports the dollar coin is used, and there is considerable fluctuation between its exchange value and that of the local tael. Various dollars are in circulation in different parts of the Republic; some are of foreign origin and were first introduced in the early days of China's foreign trade to make up for the excess of exports over imports. It is noteworthy that the actual value of the silver in the dollar coin is often a less important factor in the exchange value between the different dollars themselves and the local taels, than the popular fancy for this or that coin. For instance, in Amoy, Ningpo, Hangchow, the Carolus dollar, although lighter than the Mexican dollar, may be in such demand as to fetch Mex. $1.40; but, if used in other districts, it would probably be at a discount in relation to the local Chinese coin. Chinese dollars are issued by the various provincial mints, the first of which had been founded in Canton in 1887 by Chang Chih Tung. But, although they are usually at a discount outside their province of origin, they are gradually replacing the foreign dollars, even the most generally popular Mexican dollars, a large proportion of which was melted down and exported during the recent world shortage of

[1] *Cf.* Dr. G. Vissering, *On Chinese Currency*, Vol. I, p. 45, and also Appendix D at the end of the same work, which is a reprint of the first chapter of Dr. Vissering's article, "La Bourse d'Amsterdam," in the *Revue Économique Internationale*, Brussels, January and March, 1906.

[2] e.g., The conversion rate of the H. K. tael into the Shanghai tael is obtained in this manner:

100 H. K. taels = 111·40 Shanghai taels

Weight on local scale		100·000
Add for difference in weight		2·8
Add for touch or fineness		6·168
Add for melting expenses		0·204
		109·172
Divide by the "Shanghai Convention," an understanding by which 98 taels settle a liability of 100 taels	0·98	
		111·90

—(H. B. Morse, *op. cit.*, pp. 170-1.)

[3] *The China Year Book*, 1921-2, Tientsin and London, p. 385.

silver. The disappearance of these foreign dollars will, it is hoped, facilitate the task of unifying the Chinese silver currency, for which provision has been made by the National Coinage Act of 1914. National dollars of 72/100 Kuping tael 890 fine, bearing the effigy of the first President, are now being minted by the Tientsin Central Mint and are now circulating very widely in the Northern Provinces and the Yang Tse Valley. According to the *China Year Book* for 1921-2 (p. 288), 384 millions of these dollars have been coined during the period of December, 1914, to March, 1920, and up to February, 1918, 52 millions of old dollars withdrawn (p. 305).

Besides dollars the provincial mints are turning out subsidiary silver of 5, 10 and 20-cent pieces of 800 fine, and since 1904 also 10 and 1-cash copper pieces. As the provincial governments have been permitted to issue silver and copper subsidiary coinage for purposes of revenue, the result was an enormous over-issue, with its consequent depreciation, as compared with the tael or dollar.[1]

What makes things more complicated still, are the various notes for taels and dollars issued by the foreign banks and by the numerous native banks and the provincial governments; they all add to the financial chaos, especially as most of these issues are not restricted by considerations of adequate reserves for redemption. A return by the Board of Finance in 1915 gave the amount of the paper money issued by the provincial governments at $172 millions, circulating in three provinces at par and in the remaining eighteen at a discount varying from less than 10 per cent. to less than 44 per cent.[2]

II

The above is a brief description of the confused currency conditions of present-day China. Such a confusion could not fail to attract the attention of progressive Chinese who felt themselves humiliated by the defeat of China against Japan in 1893. Japan had, since 1871, enjoyed a unified system of currency which was nominally on a gold basis but, since 1878, practically on a bimetallic standard. The latter had, however, owing to a continuously unfavourable balance of payment, degenerated into an inconvertible paper currency up to 1886, when it became practically a silver standard again, up to 1897.[3]

Japan's victory over China caused a general reform movement, which extended to the sphere of finance. This movement, which

[1] The Board of Finance reported in 1910 that 1,400 millions of fractional silver coins had been coined by the provincial mints during the period 1890 to 1908, while the total number of coins in circulation was:

Foreign dollars	114 millions.
Chinese dollars	113 ,,
Subsidiary silver coins	1,500 ,,
Copper 10-cash coins to the value of	...Tls.100 ,,

—(Dr. Vissering, *op. cit.*, p. 154.)

[2] *League of Nations: Currencies after the War*, London, 1920, p. 201.

[3] Dr. Umesaburo Sugi, *Die Reform des japanischen Geldwesens im Jahre 1897*, Inaugural-Dissertation, Göttingen, 1901, pp. 1-11.

began in 1895, aimed at the introduction of a national currency system, but unfortunately the leaders suffered from a lack of knowledge of monetary principles and of the actual conditions and needs of the country. Their proposals were mostly mere generalizations and completely lacking in practical details. This is hardly surprising, as the currency problem was relatively unimportant in comparison with the political and fiscal problems of the time.

In July, 1901, the Viceroys Liu K'un-yi and Chang Chih-Tung, in a famous joint memorial to the Throne,[1] urged the establishment of a national coinage based on the dollar unit. An Imperial edict of August 26th, 1901, gave effect to their recommendation and ordered the closing of all provincial mints, except those at Canton and Wuchang, so as to prevent variations in the coinage owing to the absence of uniform regulations. Great care should therefore be taken by the Viceroys of Kwantung and Hupei to preserve strict uniformity in the weight and fineness of the dollars. But the enormous area of China and the absence of up-to-date means of communication, made this kind of measure absolutely futile, and as a matter of fact, the edict was not taken seriously and the provincial mints continued their activities.

On September 5th, 1902, currency reform was made an international obligation by Article II of the Mackay Treaty between Great Britain and China, which provided that China should take the necessary steps for the introduction of a uniform national coinage.[2]

Meanwhile the financial situation in China became acute. The steady fall in the gold price of silver became so serious in 1902-3[3]

[1] *Emperor Kuang Hsu's State Papers*, year 27, p. 51 : quoted by Dr. Wei Wen-Ping ; *op. cit.*, pp. 54-6.

[2] *The China Year Book*, 1921-2, p. 295.

[3] The following table, taken from *The China Year Book*, 1921-2, pp. 322-3, shows the extent of the exchange variations between Shanghai (taels) and London :

Official Quotations, Bank's Selling Rate London T. T.					Range within year.	Difference between the highest of the year and the highest of the preceding year.		
	Lowest.		Highest.					
	s.	d.	s.	d.	d.		d.	
1890	4	$2\frac{5}{8}$	5	$3\frac{1}{8}$	$13\frac{1}{2}$			
1891	4	$2\frac{1}{2}$	4	$8\frac{1}{2}$	6	down	$6\frac{5}{8}$	
1892	3	$8\frac{1}{2}$	4	$2\frac{3}{4}$	$6\frac{1}{4}$	down	$5\frac{3}{4}$	
1893	3	$1\frac{3}{8}$	3	$10\frac{3}{8}$	9	down	$4\frac{3}{8}$	
1894	2	$7\frac{7}{8}$	3	$1\frac{3}{4}$	$5\frac{7}{8}$	down	$8\frac{5}{8}$	
1895	2	$8\frac{3}{8}$	3	$0\frac{7}{8}$	$4\frac{1}{2}$	down	$\frac{7}{8}$*	
1896	2	$10\frac{6}{8}$	3	$1\frac{6}{8}$	3	up	$\frac{3}{4}$*	
1897	2	$3\frac{1}{4}$	2	$11\frac{1}{8}$	$7\frac{7}{8}$	down	$2\frac{1}{2}$	
1898	2	$5\frac{3}{8}$	2	$8\frac{7}{8}$	$3\frac{1}{2}$	down	$2\frac{1}{4}$	
1899	2	7	2	$9\frac{1}{8}$	$2\frac{1}{8}$	up	$\frac{1}{4}$†	
1900	2	8	2	$11\frac{1}{4}$	$3\frac{1}{4}$	up	$2\frac{1}{8}$†	
1901	2	5	2	$10\frac{1}{2}$	$5\frac{1}{2}$	down	$\frac{3}{4}$	
1902	2	$1\frac{3}{4}$	2	$6\frac{1}{2}$	$4\frac{3}{4}$	down	4	
1903	2	$1\frac{5}{8}$	2	$7\frac{1}{4}$	$5\frac{5}{8}$	up	$\frac{3}{4}$†	

*This is due to the erroneous supposition that the Japanese war indemnity would be paid in silver and that the Silver Party in U.S.A. would win the Presidency.
†Owing to silver purchase by the Br. Indian Mint and to large number of foreign troops in China during Boxer rising.
‡Large purchase of silver by Indian Govt. for coinage purposes. U.S.A. buying for new Philippines coinage.

that the Government on account of its foreign obligations was threatened with bankruptcy.[1]

For this reason in January, 1903, the Chinese Government requested the co-operation of the Government of the United States in representations to other leading powers in favour of international concerted action with regard to the silver question. A Memorandum submitted by the Chinese Chargé d'Affaires at Washington to the U.S. Secretary of State, Mr. John Hay, emphasized China's desire to promote healthy trade relations with the gold standard countries, and pointed out that safe and profitable trade between any two countries is dependent to a considerable degree upon relative stability in the value of their currency. When, however, the variations in the gold value of silver, as in 1902, reached nearly 10 cents an oz. in gold in a single year, or nearly 20 per cent. upon the price of silver bullion, this trade was rendered extremely hazardous.[2]

The Government of the U.S.A. responded to this appeal by an Act of Congress, March 3rd, 1903, creating the Commission of International Exchange, consisting of Messrs. H. H. Hanna, C. A. Conant, and J. W. Jenks. The Commission was directed to confer with the representatives of the leading European Governments and Banking Institutions for the purpose of formulating some wise and feasible policy. The consultation with the European powers was necessary because, under the existing conditions, any definite measures to put China on the gold standard should be taken by concurrent action of the leading powers, or at least with their approval, lest their distrust be excited and hence their opposition aroused.

On October 1st of the same year the Commission presented its report, and the proposals and conclusions embodied therein may be summarized as follows:[3]

It was universally agreed at every European capital in which the subject was presented, that the adoption by China of a gold exchange standard would greatly contribute to her economic progress, and that such a system would be desirable and advantageous both to China and to the gold standard countries which have considerable commercial dealings with her. The adoption of a stable currency would inevitably lead to an increase of China's foreign trade and an increase of imports in the form of advances of capital for the development of the rich natural resources of China. The fact that such exports from the manufacturing countries would not primarily depend upon the increased consuming power of the Chinese people, but upon the surplus of capital in the rich countries seeking investment,

[1] Viz., (*a*) the War Loans of 1895-98, amounting to Fcs.400,000,000 and £32,000,000, to meet the Japanese war indemnity of Tls.230,000,000, which have been commuted into gold by special agreement.

(*b*) The Boxer war indemnity of 1901, amounting to H.K. Tls.430,000,000, or about £67,500,000 at the rate then prevailing; the £ amount was to be ruling.

[2] *Report of U.S.A. Commission on International Exchange:* "Stability of International Exchange"; House Document No. 144, 1903, pp. 42-6.

[3] *Report of U.S.A. Commission, vide supra,* pp. 11-36.

would greatly stimulate this movement. Foreign investors would no more have the risk that by a fall in the price of silver, profits of 15 or 20 per cent. would be wiped out and the value of the investment reduced if it were sought to withdraw it in gold. This was the experience of Japan when she adopted the gold standard; imports had then risen from Yen 81,000,000 ($40,000,000) in 1890 to over Yen 300,000,000 ($150,000,000) in 1900—an increase of about 200 per cent., even when allowance is made for the reduced value of the yen through the fall in silver. In the case of China, imports would rise from $0·50 to $1·50 per capita, i.e., an additional market for $400,000,000 of European and American goods would be opened.

In the second place the Chinese Government would be assured of the value of her taxes. This is very important, as the steady decline in the gold value of silver made it increasingly difficult for China to pay off her debts, which were contracted in gold.

As to the course which should be adopted in the introduction of the gold exchange standard, opinion was divided. England and Russia adopted the view that China should begin on a silver basis with a view to supplying the country with a uniform currency and then giving it within a short interval a fixed gold value, because they did not think it practicable to start with the silver coins on a gold basis from the beginning.

Germany, France, the Netherlands and Mexico, however, favoured the U.S.A. view that the best method to adopt was to begin very gradually the issue of a new currency at a fixed gold par, because in this way the foreign nations and China herself would get the benefits at once. Should the system be begun on the silver basis, with the intention of establishing the silver coins later on a parity with gold, there would be no appreciable benefit to international trade, until this parity should be established. Moreover, the change would inevitably lead to speculation to a much greater degree than if the new system were to be introduced at once on the gold parity. And China would escape the difficulties and inequities which confronted the British Government and business men in India in 1893, when the necessity came about of raising the gold value of the currency.

There was to be a standard silver coin, representing the gold unit, the bullion value of which should be less than its nominal value to allow for upward and downward movements in the gold price of silver. It was further recommended that the coinage ratio[1] between the gold unit and the silver coins should conform with the ratio adopted by the different countries which were about to modify their monetary system. The ratio of about 32 to 1 was adopted in the Philippines and had been recommended for other countries, because it seemed to conform to the requirements of the then existing

[1] The term is used here to define the relationship between the weight of the silver coins and the gold unit. It is not proposed to make the new coins depend upon this ratio for their value. (*Report, U.S.*, p. 25.)

conditions.[1] This ratio was the actual ratio of about two years previously, and was about 20 per cent. higher than the actual market ratio.[2]

To maintain the parity of the silver standard coins with the gold unit, which for the present is only a question for the seaboard provinces, the following measures, which have been applied so successfully in the D.E. Indies and India, were recommended :

1. Government control of the amount of the issues, so as to keep them within the limits set by the demands of trade for legal tender money.

2. Acceptance of the coins at their legal value for public dues and private debts.

3. The sale of drafts at or near par upon gold exchange funds kept at the financial centres of the world.

To strengthen these reserves, profits from the seignorage of the silver coinage should be earmarked therefor.

So far as the minor coins are concerned, their parity would be normally maintained by putting a proper limit on the amount issued in the interior of China.

As the gold exchange system would require skilful management, and as China had no experienced Government financiers competent to undertake the introduction of it, it was proposed that China should appoint a foreigner as controller of the currency with extensive powers so as to inspire the confidence of the Western Powers.

In the light of historical evidence and contemporary experience, there is no doubt as to the theoretical soundness of the U.S.A. proposals to China. From a practical point of view, however, the U.S.A. plan is open to very serious objection, viz., with regard to the proposal to appoint a foreign controller of currency and the problem of the token coins, which is an essential feature in a gold exchange currency system. The first is of a political nature, with which I do not propose to deal here.

As to the token coins, which should be the sole currency in China, the U.S. Commission proposed to take the coinage ratio of 32 to 1, which was then nearly 20 per cent. higher than the market ratio. It was considered that this was quite a sufficient margin to allow for fluctuations in the gold value of the silver contents. Recent experience, however, has proved this to be quite illusory.[3] The reason

[1] The adoption would have the advantage both of continuing practically without a break the existing scale of wages and prices in retail transactions, and of doing substantial justice in the fulfilment of contracts made under the silver standard. (*Report U.S.*, p. 25.)

[2] Note the discrepancy between these figures and the ratios given by B. White in *Silver, its History and Romance*, London, 1920, pp. 310-11 : 1900, 33·33 to 1 ; 1901, 34·68 to 1 ; 1902, 39·15 to 1 ; 1903, 38·10 to 1.

[3] In 1904 a rise in the gold price of silver occurred, which culminated by November, 1906, when it reached its highest point since 1893, the ratio of gold to silver becoming about 30 to 1. The result of this was that the Governments of the Philippines and Straits Settlements were obliged to demonetize the existing coins and to debase their currency, while Siam advanced the Treasury rate

given by the U.S. Commissioners for not proposing a wider margin was, among others, the fear of counterfeiting in China, where the currency was chiefly silver (and copper), a gold circulation was lacking and the police system was not thoroughly organized, and also the fear that it might lead to an over-issue by the Government for purposes of revenue.

Were U.S.A. proposals, therefore, adopted, China would, from the very start, have to face the dilemma of a melting down of her standard currency, when its bullion value rises from 38:1 to 32:1, and of counterfeiting on an extensive scale, by private individuals or by foreign national organizations,[1] when the value of silver continues to fall. These are very real dangers, which might cause a complete breakdown of the whole system, with disastrous results for China.

Moreover, economic conditions in the greater part of China are not suitable for a gold exchange standard. According to Chang Chih Tung,[2] Western countries used a gold currency, because of their advanced commercial and industrial development and their high prices. In China the people are poor, prices—fixed in cash—low, and products of labour cheap.[3] The adoption of the U.S.A. proposals would, therefore, have led to a rise in real prices, because while nominal wages would have been reduced in proportion to the rise in the value of the standard, prices would not have fallen to the same extent, and would have caused serious social disturbances. If, on the other hand, gold became dearer and silver cheaper, there would be a great encouragement to the export trade, and consequently domestic industries would spring up, which in course of time would render China economically independent.

Owing then to the opposition of Chang Chih Tung, the recognized leader of the Chinese literati and the first practical currency reformer, the U.S.A. plan fell through.

of the tical from 1s. 4d. to 1s. 6d., causing thereby considerable trouble in banking and commercial circles.

From July, 1919, to June, 1920, the price of silver in London averaged 67d. per oz., which was equivalent to the ratio of about 14 to 1. The resulting debasements of the silver token coinages all over the world still lie fresh in our memories.

[1] This latter was the case with the Dutch East Indies in the period preceding 1845, when smuggling of counterfeited copper standard coins from England could only be stopped by diplomatic intervention. (Dr. G. Vissering, *op. cit.*, p. 116.)

[2] *Emperor Kuang Hsu's State Papers*, year 30, pp. 23-7; quoted by Dr. Wei, *op. cit.*, pp. 100-109.

[3] In the province of Shansi (and in West China generally), e.g., one can purchase nine good-sized hen's eggs for the equivalent of 1 cent gold, one good-sized chicken for 5 cents, mutton at 3 to 5 cents a pound without the bone, pigeons at 1 cent each, good coal at less than $1 (gold) a ton, wheat at 25 cents a bushel.

Unskilled labour in West China, i.e., Shansi, Shensi, Kansuh, and in a great portion of Szechuan, commands an average wage of 3 to 5 cents a day.

(Quoted: Consul J. H. Arnold in the 1911 *Report of the Director of the U.S.A. Mint*, p. 223.)

Early in 1907 the Board of Finance addressed a series of memorials to the Throne, which, among others, contained proposals for a new currency act and an outline of the policy which it expected to pursue,[1] of which the essence is, that China is to introduce new national silver coins on the silver basis to replace the old coins and the bullion currency. Then a note circulation is to be introduced on an extensive scale to replace the new standard coins ; the coins so withdrawn to be held as a trust fund or sold for gold. When the note circulation has become universal, the Government should declare a free coinage for gold at the market ratio of a given time and convert the silver notes into gold notes. If the gold reserves at any time prove insufficient, the notes may be redeemable in silver bullion at its market value in gold.

The procedure proposed is thus different from that of the U.S.A. Commission (as materialized in the Philippines) or from the course of action taken in British India, and it seems to be superior, as it combines the advantages of the others, while being free from the objections against them.

In 1911, as a result of negotiations for an international loan of £10 millions for purposes of currency reform, Dr. G. Vissering, then President of the Central Bank of Java, was appointed Monetary Adviser to the Chinese Government. His proposals for Chinese currency reform, based on the Chinese Board of Finance Scheme, are embodied in a work entitled *On Chinese Currency*,[2] and for that time are by far the most satisfactory suggestions for China. Dr. Vissering's views and arguments may be summarized as follows :

The best currency system for China for the first twenty to thirty years will be the gold exchange standard system and must be the ultimate goal of currency reform. Under this system China would secure a relative stability of prices and of foreign exchanges ; salaries, rents, taxes, will also have a fixed and certain value, trade relations with, and debts to, foreign countries will be settled in amounts which are fixed from the beginning, so that neither debtor nor creditor will have to face the risk of an adverse rate of exchange by a rise or fall in the price of the metal.

The principal disadvantage of this system is that it is an artificial system which requires a very close supervision if a deterioration of the currency is to be avoided. It is an undoubted advantage of the silver standard that the silver coins carry their own real value, but this system does not procure any stability of prices, etc., nor avoid the difficulty of keeping the token copper currency at par with the

[1] Chinese Government reforms under Kuang Hsu, Vol. X, pp. 51-6 ; quoted by Dr. Wei, *op. cit.*, pp. 124-6.

These proposals have been translated into English by Dr. C. D. Tenney of the U.S.A. Legation in Peking and published in 1911 by the Board of Finance as *Memorials of the Board of Finance relating to Chinese Currency Reform.* Since 1918 these proposals have been made Government policy.

[2] Published at Batavia in 1912 for private circulation and reprinted in Amsterdam in the same year.

standard coin. The fact that silver is steadily depreciating, forms another objection against this standard, although it is true that during the transition from the silver standard to the gold basis in the Dutch East Indies, exporters of tobacco and rubber in Sumatra were making tremendous profits, due to the fact that they were protected by a gold standard abroad and that their expenses at home, in terms of a steadily depreciating currency, were fairly constant.

Apart from the difficulty as regards the silver token coinage which is inevitably connected with the gold exchange standard system, we must also consider the enormous area of China with such a variety of conditions and of interests, as a consequence of which a monetary system suitable for one part of the country would be totally unfit for another. Another point is the uncertainty as to the real position and strength of China with regard to the balance of trade and of payment. To avoid the complications arising therefrom, Dr. Vissering suggests as a practical expedient, the maintenance of two standards together, i.e., a gold exchange standard as far as possible in co-existence with the present practically silver standard, the former gradually to supplant the latter during the period of transition. The only connection between these two systems lies in the possibility of the Government and business men fulfilling obligations in the newly fixed unit of the gold exchange system as well as in the existing silver coins at their intrinsic value. Dr. Vissering refers here to conditions in the Dutch East Indies from 1877 to 1906-8 where in Sumatra and Borneo various kinds of silver dollars circulated at their intrinsic value, while the official currency was the Dutch guilder, which was on a fixed gold basis. Prices were fixed in gold, but payments generally took place in silver coins or notes. This procedure has saved the Dutch East Indies, during the transition from the use of the silver standard to the single gold exchange standard, from the disturbances or difficulties which occurred by the raising of the rupee to 1s. 4d. and of the Straits dollar to 2s. 4d. The latter procedure caused a contraction of money and a settlement of contracts at a higher rate in the fixed money than previously in the silver currency, and in addition a great deal of speculation in silver prices in connection with the transition to fixity.

The first steps to be taken in connection with this plan would therefore be to adopt, from the very first, a theoretical or bank unit with a fixed value in gold. So long as there are no legal tender gold coins in circulation, banknotes in the new gold unit should be made the principal currency. These gold notes are only to be redeemable in gold value abroad. This device of a note circulation should be introduced, in order to eliminate the difficulty of the silver token coinage in the first stage of reform. Later on, when conditions are more settled, silver (and copper) token coins should be introduced in the areas suitable for the purpose,[1]—and their maintenance at a

[1] In this connection it is interesting to note that some years ago in Peking

gold par is to be brought about by the establishment of a gold reserve abroad, constituted by the seignorage profits. For the coinage ratio Dr. Visering suggests a gold ratio of 21 to 1, which is approximately the same as the rupee, the yen and the Philippine dollar.

The main agent in the introduction of this scheme will be the Central Bank of Issue, which must not only be operated on sound commercial principles but also, although working under supervision of the State, absolutely independent of the State. Its principal function would be, apart from the ordinary discount and loan on security business, to provide a medium of circulation of constant value in the form of banknotes and book credits. From the very first it is to keep its accounts in the new fictitious gold unit; it is to enter into contracts on the gold standard; it is to issue notes on the gold basis. But at the same time one must be able to pay the bank in silver on the silver standard, until the various kinds of silver coins and values are finally banished by a silver token on a gold standard. Customers are to be credited in the bank books either in silver or in gold, and transfer from silver to gold accounts should be allowed, the risk of a decline or rise in the gold value of silver, however, falling solely on the customers themselves. Against speculation in silver on the part of the bank proper provision should, as a matter of course, be taken.

Besides gold notes, the bank—which is to work entirely in the national interests—should also, when requested, issue silver notes fully covered for the purpose of unifying the silver currency.

The gold notes should be of small denominations, because, although scientifically they are not the most perfect medium, they are most suited to conditions in China, as for the present their rôle cannot be performed by silver token coins for reasons stated above. The value of these notes is to be maintained by the gold reserves, which are to be kept abroad. For the present these reserves are only to be used for the redemption of notes, and not for the settlement of the balance of payment, which is to be done in the old way. But this state of affairs is, of course, abnormal, necessitated by the abnormal conditions in China, because of the essentially twofold character of such gold reserves. First, they form a fund available for the redemption of notes; secondly, they are a stock which may be drawn upon or added to by means of gold drafts, so as to maintain the stability of the rates of foreign exchange. As soon as it is possible to keep an adequate metallic stock and to have a circulation of gold coins and silver tokens within the country, the portion of the reserve fund necessary for the first of these functions will have to be brought back to China and only the other part will have to remain abroad.

The gradual withdrawal and subsequent demonetization of the old silver and copper coins will then be the final stage of the reform.

dollars could only be accepted as a commodity. Five or six years later they became accepted as a coin and were in such demand for clearance purposes that a premium of 7 per cent. over and above *sycee* arose.

III

Owing to unsettled political conditions, the gold exchange standard, which has lately fascinated so many currency reformers and been put into practice in all Asiatic countries except China, will most probably for years to come not be introduced at all in China. The National Coinage Act of 1914 definitely introduces the silver standard in China with the dollar (yuan) of 72/100 Tael K'up'ing as the standard coin, and apparently it is very successful in putting an end to the chaos in Chinese currency conditions. This yuan is now in general use in all Government accounts and in banking and railway transactions, and the market value of the old style dollar coins has already come down to the legal rate. It may be expected, however, that this measure is only a preliminary to the introduction of the gold basis in China, as has been repeatedly declared by the Chinese Government. Moreover, we must take into consideration that it is not advisable at the present time to declare the legal ratio between gold and silver, since the normal ratio is greatly disturbed by the present war and post-war conditions.

The excellent opportunity presented in 1919-20 of accumulating a gold stock in China having been lost, the best course for China now to pursue is to leave the currency on the silver basis and to wait for better times and conditions, when the reforms to be carried out may be assured of success. A small and well organized country like Japan had in 1898 to be assisted by the gold indemnity from China of £38 millions in order to put her currency on a gold basis.[1] British India, the Philippines, etc., have been successful with their reforms because in times of crisis they have always had the mother-country to fall back upon. Moreover, foreign trade, although yearly increasing in volume, is only a very small fraction of the entire trade of China, which as a nation is self-sufficing and where internal conditions are not affected by the state of the foreign exchanges. She should also bear in mind that the introduction of a gold exchange standard may facilitate her economic exploitation by foreign capitalists.

[1] Dr. U. Sugi, *op. cit.*, pp. 30-36.

A New Contribution to the Population Problem

I

By Hugh Dalton.

The "population problem" is not one and indivisible. On the contrary, there are many different problems, for which various specialists may plausibly appropriate this title. Thus there are distinct population problems confronting the economist, the biologist, the ethnologist, the historian, the moralist and the militarist. But, though logically distinct, these problems are often closely related as regards practical issues. It is, therefore, undesirable that they should be treated exclusively by specialists working in watertight compartments. To provide, from time to time, a synthesis of the provisional solutions of specialists is an important piece of work, which, however, demands in its author an unusually wide range of learning.

Mr. Carr-Saunders has attempted such a synthesis in his book on *The Population Problem*.[1] His attempt is bold, laborious and suggestive. How far he has succeeded is a fit subject for a symposium. Here, however, I am only concerned with his economics.

Economists have not yet elaborated a wholly satisfactory theory of population. One of their most important tasks in the near future will be to do this. A second task, not less important, will be to apply this theory, with the aid of appropriate statistics, to the conditions of modern communities. If we can accomplish these two tasks satisfactorily, we shall be able to prove the existence of "over-population" or "under-population" in particular circumstances, to substitute scientific criteria for the mere assertion and counter-assertion of to-day, and to provide an economic justification for individual or collective action to alter the numbers of the population in particular areas. Both these tasks are, admittedly, difficult and may prove, at any rate for some time to come, to be beyond our powers. But their difficulty, combined with their importance, should act as a magnet to research in these directions.

It cannot be said that Mr. Carr-Saunders contributes much to the solution of these economic problems. As regards the quantitative theory of population, he adopts Professor Cannan's conception of an optimum number of inhabitants for any particular area at any particular time. This conception is, indeed, of fundamental importance, since it implies the attainment of maximum income per head of the population, or, in other words, of maximum productivity

[1] Oxford, Clarendon Press, 1922, pp. 516.

per head, within the limits of existing conditions and institutions. But there are certain difficulties connected with it, especially in its dynamic aspect, which have not yet been fully explored, and Mr. Carr-Saunders does not explore them. He considers, however, the possibility of under or over-population in particular classes of a community, as distinct from the community as a whole, and is inclined to think that there may be over-population, in this sense, among the poorer sections of workers in modern communities (p. 271) and "under-population among the richer classes in Europe and America to-day" (p. 295). I cannot see any ground for supposing that members of these richer classes would be individually better off, if they were more numerous. On the contrary, in so far as their wealth is inherited, they would tend to be worse off. On the other hand, it is true of any section of workers, and not merely of the poorest, that they would be better off individually if their number diminished, provided the demand for their labour did not diminish. This is simply increase of price through reduced supply. It is thus evidently possible to have over-population, in this sense, in every section of the community, but no over-population in the community as a whole. So paradoxical a result suggests that the ideas of sectional and general over-population are not strictly comparable.

When we turn from the elaboration of theory to its application, Mr. Carr-Saunders is surprisingly optimistic. He holds (Chapter IX) that among primitive races there is generally a close approximation to the optimum number. This is brought about, in his view, by the practices of abortion and infanticide, by customary restrictions of sexual intercourse and, in some cases, by killing or deserting the aged. On all these points much interesting evidence of primitive habits is brought forward, but the conclusion seems very rash. It is, indeed, true that among such peoples the problem of regulation of numbers is comparatively simple. "Everywhere, as we have seen, groups of men are confined to definite areas. Among the few things which the men composing these groups do know with accuracy are the limits within which their food must be obtained. . . . To all members of such a group . . . the disadvantages of too many mouths must be obvious" (pp. 222-3). Much less simple is the problem presented to more civilized men and women under a regime of world-wide co-operation and division of labour. But, even so, Mr. Carr-Saunders appears to attribute too much power of calculation to primitive peoples.

Ascending the scale of civilization, his optimism is only slightly modified. He reaches the general conclusion that, taking history as a whole, a serious degree of either under or over-population is rare and short-lived. "That which it is in any broad view of the whole problem of quantity desirable to emphasize, is the nearness of approach—the fact that in any country," especially within recent times, "the numbers present are, roughly speaking, those economically desirable" (pp. 294-5). On the other hand, he

considers that Egypt and many parts of India and China are probably over-populated now (pp. 275-8), as was also Ireland in the eighteenth century (pp. 284-5).

But when we examine the logical basis of these conclusions, whether for primitive or for more civilized peoples, we find that it is unsubstantial. For Mr. Carr-Saunders' only test for distinguishing between a close approximation to the optimum and a serious departure from it is whether income per head is increasing or diminishing. Thus, when dealing with primitive peoples, he says that "it is only when we are able accurately to measure the average income over a period of years during which numbers are changing that we can arrive at a definite result" (p. 230). Again, "it is probable that there is over-population in Egypt; it is probable, *that is to say* (my italics), that with the recent increase of the fellaheen population there has been a decrease in the income per head" (p. 277). And again, referring to England between 1865 and 1913, "all the evidence points to the same conclusion—namely, that throughout this period there has, on the whole, been an increase in the average real income per head, and that *therefore* (my italics) there has been no over-population" (p. 286). But this line of reasoning is fallacious. Not thus simply can over-population be proved or disproved. For let us consider some hypotheses. If in Ireland there was admittedly over-population in 1700 and if Irish income per head increased very slowly during the next fifty years, would it follow that "therefore there has been no over-population" in Ireland during this period? More generally, granted that during a given period income per head has increased, what proof is there in this that, if numbers had increased less rapidly, income per head would not have increased more rapidly? None at all. Granted, again, that during a given period income per head has diminished, what proof is there in this that, if numbers had increased more rapidly, income per head would not have diminished less rapidly? Very little, especially for one who lays down the doctrine, as Mr. Carr-Saunders does in his concluding chapter, that "the great acceleration of the rate of progress which characterizes" history since the Palæolithic Age "is to be explained, not by a change in quality, but by the growth in the quantity of the population" (p. 480). This comes dangerously near to Professor Loria's theory that pressure of population is the ultimate motive force behind material progress.

Mr. Carr-Saunders nowhere recognizes the importance, as a factor delaying the adjustment of numbers to the optimum, of the length of human life. Assume, for example, as we reasonably may, that the new Austria, as delimited by the Peace Treaties, is seriously over-populated under present conditions, and assume that these conditions, with minor mitigations, will continue. Then, even if the Austrian birth-rate falls to a small fraction of what it is at present, over-population will continue until a large proportion of the

Austrians now alive have either died or emigrated. That is to say, it will continue for many years to come. Mr. Carr-Saunders rather curiously refuses to admit that emigration may result from over-population (pp. 297ff). He maintains that over-populated countries are distinguished by " the absence of hope, of a spirit of enterprise, and of a determination to maintain a standard of living. It most emphatically is not where such conditions are prevalent that migration takes place . . . Migrating races exhibit the opposite characters. With them we associate enterprise, hopefulness, courage, and so on . . . Migration does not arise where a condition of over-population has come about " (p. 299). This argument surely pushes half-truths to unjustifiable lengths. The motive to emigration, in so far as it is economic, is a belief that the emigrant will be better off in his new country than he is in the old. This is the motive that to-day takes many Englishmen to the Dominions and many Continental Europeans to the United States. It does not necessarily follow that England or the Continental European countries in question are over-populated, though it may well be that some of them are. Italy, for example, probably is. Mr. Carr-Saunders paints too black the moral condition of over-populated countries.

But, though it cannot be said that he contributes much towards the solution of the population problem in its economic sense, much of the material which he has collected is of considerable economic interest. Though, for reasons noticed above, he tends to exaggerate their efficacy, his historical account of various devices for restricting numbers is illuminating and suggestive. Reference has already been made to abortion and infanticide and to taboos on sexual intercourse during certain periods. The killing or desertion of the old and sick is, as one would expect, specially prevalent among nomadic peoples. Thus " the Bushmen frequently forsake their aged relations when removing from place to place for the sake of hunting. In this case they leave the old person with a piece of meat and an ostrich egg-shell full of water ; as soon as this little stock is exhausted, the poor deserted creature must perish by hunger or become the prey of wild beasts. . . . Among the central Eskimos a man may kill his aged parents and on the East Coast of Greenland it sometimes happens that old people, who seem likely to die, are drowned or else drown themselves " (pp. 154-5). Civilized practices are more " humane," but not always kinder. Contrary to a widespread opinion, it appears that contraceptives are not a recent discovery of the more civilized races. They were apparently in use " in early times . . . among the Jews, German tribes, Arabs, the Franks before their conversion to Christianity, the Greeks and the Romans. Methods are employed at the present day in China and in India, though there is some doubt as to how far they are effective " (p. 255). Effective contraceptives were also discovered independently by a number of the native races of Africa (p. 177). In England neo-Malthusian propaganda began within the lifetime of

Malthus, and " J. S. Mill, in his youthful days, got into trouble with the police through distributing some of these pamphlets " (pp. 31-2).

It is a commonplace that Christian teaching regarding the sanctity of human life, not only actual but potential, has been a strong force in opposition to restriction of numbers. But, if the Early Fathers of the Church had had their way, the world would soon have been emptied. " ' For why,' says Tertullian, ' should we long to bear children, whom, when we have them, we desire to send before us, . . . ourselves also longing to be removed from this most wicked world . . . Therefore, whether marriage be for the sake of the flesh, or of the world, or of having descendants, not one of those necessities belongeth to the servants of God ' . . . St. Augustine did not avoid the practical difficulty. ' But I am aware,' he says, ' of some that murmur. What, say they, if all men should abstain from sexual intercourse, whence will the human race exist ? Would that all would thus ; . . . much more speedily would the City of God be filled and the end of the world hastened ' " (pp. 263-4). But the ideal of the celibate cell soon gave place to that of the rabbit warren.

Customs as to age and other qualifications for marriage have an obvious influence on numbers. Evidence of the ability of young men to support a wife and family is no new, or merely civilized, demand by the fathers of marriageable daughters. " Among the Kutchins," an Arctic tribe, " poor men, whose abilities as hunters are small, and who have been unable to accumulate herds, remain bachelors " (p. 226), though " in Greece criminal proceedings might be taken against celibates " (p. 251). In parts of Germany regulations prohibiting the marriage of the poor were found in the seventeenth and eighteenth centuries and aroused the interest of the English Poor Law Commissioners of 1834 (pp. 282-3). In mediæval Europe a chronic housing shortage helped to keep up the average age at marriage and, according to Mr. Carr-Saunders, the rapid increase of population after the industrial revolution began was due to the lowering of the marriage age, brought about by the building of new houses in the industrial areas and to the collapse of the apprenticeship regulations under which apprentices were debarred from marrying (pp. 264-6).

I have considered above Mr. Carr-Saunders' treatment of the population problem in so far as it is economic and quantitative. A large part of his book is devoted to the problem in a qualitative sense. This is primarily a biological problem, though it has important economic implications, and I leave it to the biologists. But I notice with pleasure that Mr. Carr-Saunders is not greatly terrified by the bogey of " differential fertility," and that those biological extremists, who deny the value, for the improvement of human life, of all studies but their own, will have no cause to love him.

II

By Morris Ginsberg.

I propose to confine attention to the second portion of Mr. Carr-Saunders' book, which may be said to deal with the problem of the agents or causes of human evolution. The problem is exceedingly complex. We have to consider (*a*) the influence of the outer or physical environment, (*b*) the action of biological and psychological heredity, (*c*) the action of what may be called social heredity or tradition, or as Mr. Carr Saunders seems to prefer, environment in the second sense. In all cases both physical and mental characters or qualities have to be considered. The task is enormous, and, in the present stage of biology and psychology, not capable of being accomplished with any sort of finality. Much of what Mr. Carr-Saunders has to say, therefore, on this part of his inquiry, is speculative, but it is safe to say that he has given us what is by far the most important review of what is known on these matters in recent times.

A.—With regard to the action of environment in the narrower sense, the conclusion arrived at is that, apart from the effect on temperament, which is considerable, and putting aside disease as a factor, the changes that are induced by variations in environment (including good or bad home environment) are slight. Also physical predispositions are more susceptible of environmental changes than mental. The evidence upon which this conclusion is based, is, however, very far from conclusive. We may briefly review it :

1. There are observations of the effects of exercise or use on faculty. In regard to physical qualities, exercise has important effects, particularly on the muscles, and in this way we may account for a great many of the variations in bodily development according to occupation, which we find in all communities. The problem is much more difficult in the case of mental qualities, for it is exceedingly difficult to discriminate in any observed change between what is due to change in the faculty or disposition as such and what to the more effective use of methods and instruments of thought acquired through education. Mr. Carr-Saunders' discussion of this problem is slight. There is a number of experiments summed up by Thorndike (*Educational Psychology*, iii) which might be quoted in support of his general conclusion. In these experiments an attempt was made to measure the effect of equal amounts of exercise of a function upon individual differences in respect to efficiency in it. They were, however, of very restricted scope, and the question cannot be regarded as settled.

2. There is a certain amount of statistical evidence of the effect of changes in environment on stature. It is, however, impossible at present to say with which features in the environment the changes are connected. Mr. Carr-Saunders gives interesting figures for Denmark and Holland. To these may be added a number of

American investigations which show that children born in America of European parents tend to be taller than those born in Europe, and this has been ascribed to improvement in the standard of life. Ripley has shown that there is a definite relation, as regards height, between the well-to-do and poorer quarters of towns. It is possible that economic conditions have an important influence in lengthening or shortening the periods of growth characteristic of different ages.

3. There is some evidence of the modification of the cephalic index with a change in environment. In particular it has been shown that the cephalic index of Jews tends to vary with that of the surrounding type. The facts themselves are not beyond dispute and the interpretation of them in any case very difficult. Some investigators have attributed the results to selection, others to intermarriage.

4. There are a number of observations of the effects of tropical climates on Europeans.

5. There is the work of the Biometrical School, dealing with the relation between physical and mental qualities and environmental conditions. To these may be added the investigations of Galton and Thorndike, dealing with the characteristics of twins. Mr. Carr-Saunders brings out the difficulties inherent in these investigations, but on the whole he seems to assign little importance to the direct influence of environmental conditions. I doubt whether this conclusion can be safely accepted in the light of our present information. Mr. Carr-Saunders himself quotes investigations which seem to establish a correlation between intellectual attainments and sociological conditions, and many others could be added, but until we know more about the laws of mental heredity and of innate differences it is hardly possible to estimate the direct effect of environmental conditions. It is, as Professor Thomson has pointed out, difficult for us to know all that is in a man's inheritance, for we only see what is expressed, and the condition of expression is appropriate nurture. Further, in dealing with mental qualities, it is particularly difficult to discriminate between what is due to faculty or disposition as such and what is due to the mode or method through which the faculty is actually realized.

B.—This brings us to Mr. Carr-Saunders' discussion of heredity in man. He seems to rely largely on the work of the Biometrical School. They have shown that as regards physical characters the correlation between parents and children, or between children of the same parents, is about 0·5, and this figure is taken as a measure of the degree of likeness due to inheritance. On general grounds it seems highly probable that mental characters are subject to the laws of heredity; but the claim of exact equality made by the Biometrical School between physical and mental resemblance, which Mr. Carr-Saunders seems to countenance, is of very doubtful value. The mental characters actually investigated are exceedingly complex, e.g., ability, vivacity, conscientiousness, popularity, temper,

introspection, self-consciousness, assertiveness. It is surely very hazardous to maintain that the resemblance in regard to these qualities between children of the same parents is the result of pure inheritance, uninfluenced by training.

The most difficult problem in regard to mental heredity is perhaps that of determining the units or unit-factors involved. On the affective-conative side of human nature, Mr. Carr-Saunders seems to think that something like ultimate faculties can be found in Prof. McDougall's list of instincts and instinctive tendencies. It may be questioned whether it is safe to take these as ultimate or as all on the same level. The very existence of some of them may be, and has been, disputed—for example, the instinct of acquisition and the instinct of self-abasement. The whole problem of the instincts in man is still very obscure. Probably they do not exist in man in independent form, and we know little to what extent their interactions are determined by hereditary structure and the course of experience respectively. As to the more general tendencies, like imitation, suggestion and sympathy, recent criticism has shown that they are very complex, and include reactions belonging to very different levels of mental development and involving different mental factors in different cases. The hereditary element in them seems more obscure than can be gathered from Mr. Carr-Saunders' remarks. The ultimate modes of feeling he takes to be those of pleasure and unpleasure, excitement and depression, and of cognition, the faculties of judgment, comparison and association. Here, too, his remarks are only tentative.

With regard to will, he thinks there is an innate tendency towards the development of a will of a certain form and strength, but he offers no explanation of the basis of such tendency. Will seems to be largely an organization of sentiments on the part of a self-conscious individual, but there is difference of opinion among psychologists as to the extent to which sentiments are innately organized. It may be further suggested that possibly there exist individual differences in the strength of the impulse to unity or organization which is characteristic of mind, and these may be the root also of the differences in the form and strength of the will.

Mr. Carr-Saunders has a great deal that is of interest to say about recent physiological accounts of innate temperamental differences ; but he says very little on the more psychological side of this question. I think that reference, say, to Mr. Shand's discussion of the temper and temperament will convince us of the great complexity of this problem and of the difficulty of determining the extent to which temperamental differences are influenced by heredity, and the extent to which they are capable of modification in the course of experience.

C.—Having determined the contribution made by hereditary structure and by environmental factors, Mr. Carr-Saunders turns to the problem of the agents or causes of human evolution. In regard to physical characters, germinal changes determined by

selection and differential fertility are the important agents. The differentiation of the chief varieties of mankind appears to have taken place in the later Palæolithic. Man then spread into varied climatic zones. Climatic differences acting both directly and indirectly (though determining the mode of occupation) upon innate differences, led through natural selection to the evolution of the chief varieties of mankind. This process once completed, there would be a tendency for the established types to maintain themselves and for variation to cease. For under the conditions of life among primitive men, those who varied from the adapted type and were less fitted to a given environment would tend to disappear. This process of natural selection would be furthered by various forms of what may be called social selection. For example, the practice of infanticide, of exposing or bathing new-born babes in cold water, of deserting the aged and sick, would eliminate the feeble and less hardy. The prevalence of polygamy, too, probably enabled the strong men and the leaders to reproduce their kind in greater numbers. In the earlier periods of human evolution selection and differential fertility, therefore, tended to the maintenance of the types early evolved.

The discussion of the operation of selection in the modern period is rather slight. The view taken seems to be that owing to improved social control and social aid, physical weaknesses do not any longer tend to elimination, yet selection is still widely operative through diseases due to the attacks of parasites, as a result of which those who are naturally immune, or have the power of acquiring immunity, are favoured. This question needs further discussion. The theory of immunity is only verified, I believe, for special cases, and even when immunity does exist it is often highly specialized and does not mean general fitness. Does elimination through disease leave the race stronger? Further, to what extent is selection through disease, in so far as it is operative, determined by social factors?

In reference to mental characters, Mr. Carr-Saunders arrives at the conclusion that the greater part of the progress in the development of the intellectual faculties was already accomplished far back in Palæolithic times. The increasing domination of man must have been due to growth in innate intellectual powers, needed alike for the control of nature and the development of sociality. Changes in hereditary or germinal nature, controlled by selection and differential fertility, were, therefore, of the greatest importance for the mental evolution of man during what Mr. Carr-Saunders calls the intermediate period. Since Palæolithic times, however, there is very little evidence of germinal change in innate capacity. An examination of those living races, which with qualifications may be said to represent Palæolithic man in mental and bodily characters, shows that they differ from the modern European, if at all, in disposition rather than in intellectual endowments. This conclusion is based on the reports of observers of the Australian natives and of negroes

and upon a number of mental tests. These latter do, indeed, show a certain superiority for the white races, but, as Mr. Carr-Saunders points out, they do not entirely eliminate environmental factors, and the superiority may therefore not be due to hereditary or racial endowment. It may be added that such observations as have been made under experimental conditions, as regards the simpler mental characters, such as acuteness of vision, hearing, tactile discrimination, pain, etc., do not reveal any marked or fundamental differences as between different races. (Cf. Thorndike, *Educational Psychology*, iii.)

In regard to the modern period, Mr. Carr-Saunders carefully avoids the exaggerations of the race theorists, yet he shows a certain tenderness for a modified form of their views recently propounded by Prof. McDougall. Thus he is inclined to accept (p. 449) the view that there is an association between the innate characteristics of the three chief racial types of Europe—the Nordic, Mediterranean, and Alpine—and their institutions. He refers in particular to the distribution of Protestantism as explicable by what are alleged to be racial characteristics of the Nordic type—self-assertiveness and love of independence. But this explanation is of very doubtful value, for it is by no means obvious (1) that the Reformation was essentially a movement for independence of thought and individual liberty; (2) that independence is peculiarly characteristic of the Nordic race; (3) that countries that are nominally or officially Catholic do not contain as many elements of free and independent thought as those that are nominally Protestant. Further instances may readily be found of Nordic populations which have remained Catholic, as the Westphalians and the Flemish in Belgium, and of Alpine populations which are Protestant, as, e.g., in Bohemia. It seems pretty clear, even on a cursory examination, that the distribution of Protestantism is due to complex historical circumstances, with which race has very little to do. It may be added that the racial explanation of the tendency to suicide to which Prof. McDougall attaches so much importance, has long ago been shown (notably by Durkheim) to break down completely when applied to Germany, Austria, and Italy. We may, I think, safely say that all the attempts that have hitherto been made to assign definite mental and moral qualities to the different races of Europe are seen to be unfounded on closer investigation, though this, of course, does not mean that there are no such differences.

But racial differences are really not of much importance in Mr. Carr-Saunders' theory. Indeed, one of the great merits of his work is the emphasis he lays upon the modification of tradition as distinguished from germinal change as the vital factor in history. He shows, I think, conclusively, that though germinal change may accelerate traditional change, it is at most only a contributory cause, and that the real agents of social changes are not racial or ethnical, but social. He gives us most illuminating and important discussions

of the nature, origin, and growth of tradition, to which only brief reference can be made here. We have seen that he assigns only subsidiary importance to the direct effect of the environment upon the germinal constitution, but indirectly environment comes in the later phases of human evolution to be of the greatest significance and to dominate germinal change, through its influence upon the origin and transmission of tradition. Fertility and contact are here the key-words. Fertile areas, i.e., areas in which there is an abundance in quality and quantity of useful objects, offer greater opportunities to progress in skill. Further, in the more fertile areas, the density of the population increases. Such increase leads to greater contact between men and this in turn facilitates the transmission of inventions and improvements, and also acts directly as a stimulus to further inventions. Progress in skill further results in the shifting of the centres of the highest fertility and thus the shifting of the centres of progress are largely determined by differences in natural endowments as between different parts of the world. Contact is influenced positively and negatively by geographical and economic factors, and in regard to the latter, particular importance is attached to the transition from the segmentary type of social organization to the organic, since the organic societies favour the development of skill and its transmission and absorption. Social institutions are regarded as correlated to a considerable extent with economic factors, and thus in accounting for changes in tradition in relation to economic systems by reference to such factors as differences in fertility and contact, light is thrown also upon the history of social institutions. In discussing the manner in which tradition conditions the manifestations of the instinctive and intellectual tendencies of man, Mr. Carr-Saunders has been greatly helped (as in many other points) by the work of Professor Hobhouse ; but this is too big a subject to be here further dwelt on. I have omitted from consideration many topics upon which light is thrown in this book, but reference must be made, in conclusion, to the attitude taken by the author to a theory which is attracting a great deal of attention at the moment—the theory which attributes to differential fertility the cyclical course of civilization. He shows that the theory does not in any way explain the " ups " or periods of advance. There is no evidence of favourable germinal changes at such times, while, on the other hand, it is generally possible to point to the presence of a new stimulus, most frequently due to contact with new cultures. Decline is probably due to the fading of the power of the stimulus and the prevalence of apathy. Possibly, differential fertility is rather the result than the cause of the cyclical course of history. In any event, there is nothing in the latter to invalidate his general conclusion, that " in the main the course of history is dependent upon changes in tradition which are for the most part independent of germinal change."

Some Recent Literature on Finance and Politics in India

By Mrs. V. Anstey.

It has been said that "the acid test of any country, as of an individual, is finance." It might with equal truth be said that finance is the acid test of the Indian Constitutional Reforms of 1919. A critical stage in constitutional development has now been reached in India, and the immediate future will decide, probably on the occasion of a financial controversy, whether the unique political experiment now in progress can, or cannot, be brought to a successful conclusion.

This unique political experiment, as I visualize it, is the attempt of one civilized political unit to govern and develop another unit, not of primitive or backward civilization, but of another, radically different type of civilization, with the ideal of educating and training the members of the latter to take over their own self-government.[1]

Taken together, the three books[2] under consideration form an excellent introduction to the study of the present situation in India. In general "get up" they fully maintain the reputation of the Clarendon Press, and the slender volumes by Sir Courtney Ilbert and Mr. Horne are, in particular, a delight to handle. *Dyarchy* is necessarily a more bulky volume; the paper is not so good and the content headings might be improved from the point of view of quick and easy reference.

The survey by Sir Courtney Ilbert—that "old and sincere friend of Indian aspirations," as Mr. Curtis calls him[3]—is the best existing historical introduction to the study of the Government of India. This particular edition is a reprint "revised and brought up to date," bringing the account down to the inauguration of the Reforms of 1919. The intention is announced of republishing this historical

[1] This has been the recognized ideal in India at least since the first quarter of the nineteenth century. See Sir Thomas Munro's sincere, if rather patronizing, Minute of December 31st, 1824: "We shall in time so far improve the character of our Indian subjects as to enable them to govern and protect themselves."

[2] *The Government of India.* By Sir Courtney Ilbert, G.C.B., K.C.S.I. 144 pp. Clarendon Press. 1922. 10s. 6d.

Papers Relating to the Application of the Principle of Dyarchy to the Government of India, with an introduction by L. Curtis. Clarendon Press. 599 pp. 1920. 31s. 6d.

The Political System of British India. By E. A. Horne, I.E.S. 184 pp. Clarendon Press. 1922. 10s. 6d.

[3] *Dyarchy,* p. 427.

survey later, " with the addition of the text of the Government of India Act now in force, and with explanatory notes and other documents and indexes."[1] In view of the agreeable appearance of this volume as it stands, I would suggest that the additions should be published separately in a companion volume.

Mr. Lionel Curtis's volume is a collection of the most important documents containing the main arguments advanced for and against the " principle " of dyarchy, compiled ostensibly to provide in handy form information requisite to a hypothetical Commission of Inquiry on the working of the Government of India Act of 1919. The present salt tax certification controversy makes it probably that some such review may be required even sooner than Mr. Curtis—that " globe-trotting doctrinaire, with a positive mania for constitution mongering," as Lord Ampthill called him[2]—seems to expect. Published in 1920, *Dyarchy*, like Sir Courtney Ilbert's book, ends with the passing of the Reforms, but at the present juncture interest again centres round that principle, and a study of these papers is indispensable for a clear understanding of its origin and basis.

The documents here reprinted contain an account of the origin and expansion of the " Round Table " organization. Mr. Curtis's central idea was that, in order to place the British Empire on a secure basis, it would be necessary to form a strong Imperial Central Government, representing the Dominions and the United Kingdom on equal terms, thus necessitating the reduction of the United Kingdom to the status of a Dominion. He is careful to point out, however, that this was merely his personal view and not in any way a principle of the Round Table organization, which (on the contrary) he carefully defines as " merely a system for enabling people to unite for the study of their duties as citizens of this Commonwealth."[3] At first, India was excluded from the sphere of study, until Sir James Meston and Mr. Marris urged the impossibility of reaching any solution for the Empire as a whole without considering the problem of India.[4] Moreover, it soon became evident that the young democratic communities to whom " the principle of self-government is the breath of their nostrils,"[5] would never consent to any scheme which meant their sharing in the responsibility of governing India autocratically.

Hence, in the autumn of 1915, Mr. Curtis and his friends began to study the problem of the relation of India to the rest of the Empire, clearly recognizing the fact that the time had come to define the goal of England's policy in India.[6] General agreement

[1] Preface.
[2] *Dyarchy*, Introduction, p. xxvii.
[3] *Dyarchy*, p. 46.
[4] *Op. cit.*, p. 49.
[5] *Op. cit.*, p. 76.
[6] " From 1858 onwards Parliament forgot to ask itself to what ends it was governing India, or to supply its agents with an answer." *Op. cit.*, p. 474.

emerged from these discussions on two points. First, it was agreed that the eventual goal could only be "self-government," and that "the only meaning of self-government as a goal which bore the test of examination, was responsible government for India within the Commonwealth on lines which could not stop short of those by which the Dominions had reached their present position."[1] Second, it was unanimously agreed that India could not advance to full responsible Government by one single step.

The first tangible result of these deliberations was the so-called "Duke Memorandum," the original dyarchical scheme as drawn up by Sir William Duke. This document has not hitherto been published, and it is useful to have it rescued from oblivion and placed in its correct chronological relation to the other documents. These other documents give a clear account from the lay point of view of the structure of the Indian Government before the Reforms, and trace the development and transformation under criticism of the idea of dyarchy, until it emerged finally in the official form of the "Government of India Act, 1919."

The papers on the structure of the Indian Government are peculiarly valuable, as they help to rectify the defects of the official literature of which Mr. Curtis says (alas! too truly): "Because it is all written by experts for experts, it is for the student, whose life has been spent elsewhere, not equally informing."[2] Mr. Curtis is not alone in this view, and (for instance) quotes Mr. Lovat Fraser as observing that "the information compiled, printed and published by the Government of India is, perhaps, in proportion to its immense volume, the least illuminating in the world."[3] Mr. Curtis, having "had to discover the facts and explain them to himself,"[4] is able to present them in an illuminating manner to others.

The section on "Land Revenue" is one of the most interesting chapters in the book, and here it is that one sees most clearly the intimate interdependence of Indian finance and politics. Mr. Curtis, in a note,[5] sums up the financial problem succinctly. In discussing the question "how is the produce of land in India apportioned amongst various claimants?" he arrives at four conclusions:

1. "The cultivators are living dangerously near the margin of subsistence . . .

2. "A drastic diminution in the present cost of government would leave the masses not better but worse off than they now are . . .

3. "Measures . . . which will really strike at the root of this poverty will involve heavy and increasing expenditure of government . . .

[1] *Op. cit.*, p. xxii.
[2] *Op. cit.*, p. xxxv.
[3] *Op. cit.*, p. 468, § 4.
[4] *Op. cit.*, p. xxxvi.
[5] *Op. cit.*, pp. 288, 289.

4. " The defect in our revenue policy . . . has been in its tendency to leave an increasing share of the produce of land in large parts of India to inure to the benefit of a comparatively small class of land-owners. If, instead of doing this, it had been possible for Government to continue to collect the increasing share of revenue remitted to the land-owners, and if Government had then spent that share on the education of the people and the development of the country, the position of the masses would, I venture to say, be greatly better than it now is." From this he concludes that : " The people of India will have to raise and spend for themselves much more revenue than is now spent on education and on development."[1] The only immediate way of raising the additional funds required is by taxing the " share of land revenue which, under British administration, the Zamindars have been allowed to keep for themselves."[2] and this, considering the composition of the reformed legislatures, seems a very remote possibility indeed. This being so, it seems likely that the present instalment of self-government will fail to yield one of the main benefits hoped for, that is, greater willingness to submit to taxation. " For, as Lord Cromer was never tired of urging, a great dependency will only submit to a foreign government so long as the rate of taxation is kept exceedingly low . . . yet . . . a low rate of taxation is not consistent with such a measure of progress as will keep the country abreast of others. . . . It would seem, therefore, that India can hope to progress only in so far as the power to raise additional revenues is accorded to representative bodies, and, likewise, only in so far as those bodies will face the duties imposed upon them."[3] This will prove to be the acid test of the Reforms of 1919.

Let us return to the events leading up to the official adoption of the principle of dyarchy. The recognition of the two facts mentioned above (that the goal of English policy in India is responsible government and that India could not advance thereto by one single step), and of the further fact that advance along the lines of the Minto-Morley Reforms was blocked because it would " give the electorate power to paralyse Government at every turn, but no power, and no responsibility, therefore, of conducting Government for themselves!"[4] left some form of dyarchy as the only alternative. That is, " Dyarchy " was put forward not as a principle in itself, but as the only possible means of gradually introducing responsible government.

While the two books just reviewed give an account of the historical evolution of the Government of India and of the origin and basis of " Dyarchy," Mr. Horne goes one step further and comments not only on the course of events leading up to the Reforms, but also on

[1] *Op. cit.*, p. 289.
[2] *Op. cit.*, p. 289.
[3] *Op. cit.*, pp. 274, 275.
[4] *Op. cit.*, p. xxiii.

the working of the reformed constitution. He brings out clearly the part played by the war in hastening the coming of the Reforms, and expresses the opinion that " Any reservations which would have made less complete the grant of Home Rule, in the limited sphere of government in which alone immediate Home Rule was practicable, any concessions which might have had the effect, at a critical time of transition, of undermining authority or rendering insecure those fundamental conditions of law and order without which no political progress of any kind is possible, would have alike proved fatal."[1] Finally, Mr. Horne gives an account of the recent revolutionary movement in India. There is great need for more light on the basis and strength of this movement. Two opposed views have been advanced. On the one hand, since the arrest of Gandhi, there has been a tendency in England to consider that the problem has been solved, whereas, on the other hand, it has been said, in connection with the salt tax controversy, that the Reforms have already broken down. Both these views I believe to be mistaken. In the first place, the gravity of the action of the Viceroy has been exaggerated. Certification is not an " exceptional measure."[2] It is a perfectly normal method of asserting the Governor-in-Council's acknowledged predominance in the sphere of Central Government. It is the result of the deliberately adopted policy of preventing the Governor from legislating " until he has had a definite quarrel with the elected council."[3] The whole controversy merely accentuates the close connection between finance and politics in India, and draws attention to the fact that Indian politicians do not yet seem to realize the necessity for increased Government revenue and expenditure if prosperity is to be attained.

On the other hand, the temporary nature of the present settlement has probably not been fully recognized in England. The new machinery of Government still possesses many of the defects of the pre-1919 system ; for instance, it encourages the " undue development of the critical faculty " of members of the Central Legislature " without concomitant responsibility."[4] For " Dyarchy " is not a wonderful constitutional invention, solving the whole Indian question. It is not a " principle " at all, but merely a method of passing from one form of government to another. Only, if both parties recognize this clearly can success be attained. The English must not try to prevent the Indians from crossing the bridge which they themselves have erected, whilst the Indians for their part must refrain from cutting the supports of the one end of the bridge before they have reached the other end. Only by accepting this situation and making the best possible use of it, can the unique political experiment (as I have described it) be brought to a success-

[1] *The Political System of British India*, p. 44.
[2] *The Times*, March 31st, 1923, " The Indian Budget Crisis."
[3] *Dyarchy*, p. xlvi.
[4] *Ibid.*, p. 12.

ful conclusion. "That England has granted responsible government to India in strictness should never be said and will never be true. The best she could do was to put India in the way of taking responsible government for herself. That she has done, and the rest remains for Indians to do."[1]

[1] *Dyarchy*, p. lx.

Statistical Tests of Agreement between Observation and Hypothesis

By R. A. Fisher.

1—Introductory.

In a recent number (January, 1922) of the *Journal of the Royal Statistical Society* (Ref. 1) I put forward a proof that the distribution of χ^2, the Pearsonian test of goodness of fit, is not known merely from the number of frequency classes. In cases where the population, with which the sample is compared in calculating χ^2 has been itself reconstructed from the sample, we must also take account of the number of degrees of freedom absorbed in this process of reconstruction. The two cases of widest application were (i) contingency tables in which the population is reconstructed by assigning to the margins the frequencies observed in the sample, and (ii) frequency curves constructed to agree with the sample in respect of one or more moments. The common sense of this correction lies in the fact that when the population with which the sample is compared has been artificially identified with the sample in certain respects, such as the marginal frequencies, or the moments, we shall evidently make an exaggerated estimate of the closeness of agreement between sample and population, if we regard the sample as an unselected sample of a population known *à priori*. It was possible to show that the distribution was in fact that which arises when from any population a large number of samples are taken, and only those samples chosen which agree with the population in (say) the marginal frequencies; these samples compared to the true population will give values of χ^2 distributed in the same manner as in the practical case in which we compare any sample with a population artificially constructed from it. In both these cases the value of n' with which Elderton's Table should be entered is found by adding unity to the number of degrees of freedom in which the sample and the population are free to differ.

The following scheme shows the various forms of sampling which have been considered in this discussion, and which have not always

	Random Sample.	Selected Sample.
True population	A.—No correction needed.	B.—Correction needed.
Reconstructed population	C.—Correction needed.	

been clearly distinguished. A is the type of sampling considered by Professor Pearson in his memoir of 1900 (2) ; when the distribution of a random sample is given by the frequencies $x_1 \ldots x_n$, while the distribution of the true population from which the sample was drawn is given by $m_1 \ldots m_n$, when $S(x)=S(m)$, then Pearson showed that

$$\chi^2=S\left(\frac{(x-m)^2}{m}\right)$$

was distributed in the Type III distribution made available by Elderton's Table. The true distribution of χ^2 for any finite value of $S(x)$ is, of course, discontinuous, but when the frequencies in all the cells are fairly large, the distribution of χ^2 is nearly independent of $S(x)$, and tends to that of the Type III curve. The distribution still depends on the number of cells, and this number is equated to n^1 in entering Elderton's Table.

Although the validity of Pearson's method of testing goodness of fit (in case A) is not universally accepted, I know of no published criticism to which it has been exposed, and personally do not question its correctness when the frequencies are sufficiently large.

In case B there is also, so far as I am aware, no disagreement. Pearson (3), in 1916, showed that in this case a complete correction was possible by entering Elderton's Table with a value of n^1 less than that of the frequency classes by the number of linear restrictions imposed on the sample.

The really important case is C, in which the theoretical distribution is unknown, and is reconstructed from the marginal values of the sample ; this case is by far the most frequent in actual practice. It was the contention of my paper of January, 1922, that this case is equivalent to B, for the same relations are established between the sample and the population to which it is compared, either by selecting such samples as agree with a known population, or by comparing a sample chosen at random with a population constructed to agree with it in the same respects.

2—Fourfold Tables.

In any fourfold table in which the marginal totals agree, with those of the population to which it is compared in the calculation of χ^2, the differences $(x-m)$, have the same value, positive or negative, in all four quadrants. The magnitude of this difference is clearly a measure of the departure of the sample from expectation, and if it is divided by its standard error of random sampling, we find the same value χ which appears in the Pearsonian test of goodness of fit. From this it would appear that, with large samples, χ tends to be normally distributed in the distribution

$$df=\frac{1}{\sqrt{2\pi}}e^{-\frac{1}{2}\chi^2}d\chi$$

which is identical with the Type III distribution of Elderton's Table for $n^1=1$.

Using this fact, Bowley (5, p. 371) tests the significance of two contingency tables; this was so far as I know the only instance previous to my note of January, 1922, in which the value of χ^2 had been correctly used to calculate P for testing the independence of the variety in a fourfold table. It may easily be shown in the same way that if x be any measure of divergence from proportionality in the case of a fourfold table, such as the difference of the percentages, then

$$\frac{x^2}{\sigma_x^2} = \chi^2$$

For the differences of percentages see (1). For other measures I may quote Pearson (6, p. 29):

$$\chi = \frac{r_{hk}}{{}_0\sigma_{hk}} = \frac{Q}{{}_0\sigma_Q} = \frac{\phi}{{}_0\sigma\phi}$$

where r_{hk}, Q, ϕ, are all measures of the departure of the observed table from independence, and ${}_0\sigma_Q$, etc., are the standard errors of random sampling for a population in which the variates are independent. Pearson, however, denies that χ is normally distributed, on the ground that from Elderton's Table with $n' = 4$, its distribution should be

$$df = \sqrt{\frac{2}{\pi}}\, \chi^2 e^{-\frac{1}{2}\chi^2} d\chi$$

If I am right, Pearson was misled by assuming that $n' = 4$ gave the correct distribution when the marginal frequencies of the population are reconstructed from the sample, into the wholly untenable view that r_{hk}, Q, ϕ, and other such measures, are not normally distributed even in large samples, but that their distribution is that given above. Since each of these quantities may be defined by a natural convention so as to be equally frequently positive and negative, the latter view involves the belief that their distribution is bimodal, with a zero frequency at the central point of the symmetrical distribution.

The proof that for large samples the distribution of these quantities is normal is not difficult; in the fourfold table

a	b	$a+b$
c	d	$c+d$
$a+c$	$b+d$	$a+b+c+d$

let

$$x = \frac{a}{a+b} - \frac{c}{c+d}$$

I have shown (1) that

$$\frac{x^2}{\sigma_x^2} = \chi^2.$$

It is necessary now to show that the distribution of χ will tend to normality as the sample is increased. Considering the sub-sample $a + b$, the distribution of a will be that of the bionomial

$$(p + q)^{a+b}$$

hence the distribution of $\frac{a}{a+b}$ tends to normality as $a + b$ is increased indefinitely. Similarly that of $\frac{c}{c+d}$ tends to normality with the same mean, but different standard deviation. Moreover, from a population in which the two attributes are independent, these will be two independent samples; and it is well known that the distribution of the difference of two independent normally distributed variates is itself normally distributed. Consequently, x tends to be normally distributed about mean at zero; if then

$$\chi = \frac{x}{\sigma_x}$$

χ must be normally distributed with standard deviation unity, while for its positive value

$$df = \sqrt{\frac{2}{\pi}}\, e^{-\frac{1}{2}\chi^2}\, d\chi,$$

and not

$$df = \sqrt{\frac{2}{\pi}}\, \chi^2 e^{-\frac{1}{2}\chi^2}\, d\chi.$$

The difference of opinion is a simple one of fact. If I am right, the mean value of $\chi^2 = 1$, if Professor Pearson is right, it is 3. Professor Bowley, on the other hand, regards two assumptions as possible: In speaking of a table showing Inoculated—Not inoculated, Recovered—Died (4, Doubtful Case, p. 4), he writes:

> "If we applied the method of Case III (red and black cards) we should be assuming the total number recovered, inoculated, etc., were given, and ask whether, if recovery and inoculation were totally unconnected, so large a number would be found by chance in the first compartment.
>
> "If we applied the method of Case IV we should be assuming that we were examining only a sample from a larger universe in which the proportions recovered : died and inoculated : not inoculated were not known."

It is difficult to know what meaning is to be attached to this distinction. Professor Bowley does not explain what difference there is between this case and that treated in his book (5, p. 372), where the divisions are Recovered—Died; Not Vaccinated—Vaccinated, for which, rightly in my opinion, he takes χ to be normally distributed. Nor does he explain why this case is considered doubtful, as against Case IV (Dull—Not Dull; With defects—Without) where he, wrongly in my opinion, uses the formula $n^1 = 4$. In all these

cases the marginal totals *in the sample* are given, and *in the population* are unknown, and since the latter in all these cases has been reconstructed from the former, the sample can only differ from the population in one degree of freedom. No assumption as to what we know or do not know can alter the consequences of our procedure in calculating χ^2, and this procedure is the same in all these cases.(8)

3—χ^2 as Function of Frequencies.

That the distribution of χ^2 from random samples is determined solely by the procedure by which it is calculated may be emphasized by returning to first principles. In a fourfold table let the probabilities that an event shall fall into each of the four compartments be p_1, p_2, p_3, p_4. Then

$$p_1 + p_2 + p_3 + p_4 = 1,$$

and if the variates are independent

$$p_1 p_4 = p_2 p_3,$$

so that we may write

$$p_1 = pp^1,\ p_2 = qp^1,\ p_3 = pq^1,\ p_4 = qq^1.$$

If now a sample of n be taken, the chance that the number of observations in the four compartments are a, b, c, d will be the term of the multinomial expansion

$$\frac{n!}{a!\ b!\ c!\ d!}\ p_1^a\ p_2^b\ p_3^c\ p_4^d.$$

Since the simultaneous distribution of a, b, c, d is thus determinate in terms of p_1, p_2, p_3, p_4, and n, the distribution of any function of a, b, c, and d, is also determinate. Two such functions may be considered; in the first place let

$$\chi^2 = \frac{a^2}{p_1 n} + \frac{b^2}{p_2 n} + \frac{c^2}{p_3 n} + \frac{d^2}{p_4 n} - n = S\left\{\frac{(a - p_1 n)^2}{p_1 n}\right\} \quad (A)$$

this is the value of χ^2 used when p_1, p_2, p_3, p_4, are known by hypothesis and we desire to test if the observation a, b, c, d is in accordance with that hypothesis. It is agreed that this function tends to be distributed as n is increased, in a manner independent of p_1, p_2, p_3, p_4 and n, in the distribution given in Elderton's Table under $n^1 = 4$.

When, however, p_1, p_2, p_3, p_4 are not known, and it is required to test, not any particular hypothesis of their values, but whether the two variates are or are not distributed independently, then we make the substitution

$$p_1 = \frac{(a + b)\ (a + c)}{n^2},\ \text{etc.},$$

and so arrive at the formula

$$\chi^2 = \frac{(ad - bc)^2\ n}{(a + b)\ (c + d)\ (a + c)\ (b + d)} \quad (B)$$

This is a different function of a, b, c, d from that previously used, and the error of using the formula $n^1 = 4$, in testing independence, consists in assuming, when a, b, c, d take all their possible values with frequencies given by the multinomial formula, that this new function is distributed in the same manner as the function previously used.

It will scarcely be disputed, after what has been already said, that if χ is calculated by equation B, then it will be distributed in random samples in a normal curve with standard deviation unity. If necessary a formal and complete proof of this fact can be given. It is sufficient here to point out the difference between the functions A and B, and to emphasize the fact that the distribution found by Pearson for function A cannot be assumed to be correct if B is the function actually employed.

The differences between the two functions A and B are, in fact, very great. A is a function of the probabilities p_1, p_2, p_3, p_4, and can only be used if these are provided by the hypothesis to be tested; it is distributed in accordance with the formula $n^1 = 4$, and its mean value is 3. On the other hand, B is a function of the observed frequencies only, and is used to test independence, that is, when our hypothesis tells us no more than that $p_1p_4 = p_2p_3$; it is distributed in accordance with the formula $n^1 = 2$, and its mean value is 1. To enter Elderton's Table under $n^1 = 4$, with a value of χ^2 calculated by equation B, is not to make a test of independence, for such a value of χ^2 is not in fact distributed in the distribution for which the table $n^1 = 4$ was calculated. The effect of this error is greatly to over-estimate the agreement of the observed sample with expectation, and correspondingly to under-estimate the significance of discrepancies from expectation based on the hypothesis of independent variates. Thus for χ^2 calculated by equation B the value obtained from random samples with independent variates will exceed 4 in only 4·55 times to 100 trials. An observed value $\chi^2 = 4$, therefore, strongly suggests that the variates are not independent. But if χ^2 be obtained from equation A, its value from random samples with independent variates will exceed 4 as many as 26·15 times to 100 trials; no significant departure from expectation could be inferred from such a value; this shows how misleading it may be to calculate χ^2 by equation B, and at the same time to assume the distribution to be that of the function given in equation A.

4—Yule's Experiments.

It is the more surprising that Bowley should have reverted to the Pearsonian mode of testing fourfold tables since the actual distribution of χ^2 in this case has been determined experimentally by Yule. Yule's experiment was designed to settle the question of the distribution of χ^2 in the fourfold table in Case C, where the population is reconstructed from the sample. He also calculated χ^2 from the known population and verified that in this case the

Pearsonian formula $n^1 = 4$ was correct. No less than 350 observations were made. The distributions of the values of χ^2 calculated from the reconstructed populations were as follows (7, p. 100) :

	Number Expected $n^1 = 2$.	Number Observed.	Number Expected $n^1 = 4$.
0 — ·25	134·02 +	122	10·80 —
·25 — ·50	48·15 —	54	17·58 —
·50 — ·75	32·56 —	41	20·13 —
·75 — 1·00	24·21 +	24	21·05 —
1 — 2	56·00 —	62	80·10 +
2 — 3	25·91 +	18	63·27 +
3 — 4	13·22 +	13	45·56 +
4 — 5	7·05 +	6	31·38 +
5 — 6	3·86 —	5	21·07 +
6 —	5·01 +	5	39·06 +
	349·99	350	350·00

There can be no question that the expectation $n^1 = 4$ completely fails, while $n^1 = 2$ fits the observations well; calculating P from the 10 classes, the distribution being known *à priori*, $n^1 = 10$, $\chi^2 = 7{\cdot}53$, $P = {\cdot}583$, according to Yule, for $n^1 = 2$. For $n^1 = 4$ the fit is so bad that it is not worth while to calculate the exact value of χ^2. By no possibility could it be considered as fitting the observations; and it is to be emphasized that in this series the procedure of calculating χ^2 was to take a random sample, without limitation of its marginal frequencies, and compare it with a reconstructed population having the same marginal frequencies. That is to say, the procedure was that of Case C, which is the most important case in view of the frequency of its occurrence.

Yule's data thus affords a conclusive confirmation of my theoretical conclusions for the case of the fourfold table. Its generality for contingency tables will be readily conceded by those who will follow the reasoning of my paper of January, 1922. The application to the goodness of fit of curves fitted by moments or otherwise was only touched upon in that paper. For the present it will be sufficient to say that the correction is needed, whenever the population is reconstructed from the sample; and is exact whenever the Type III distribution of Elderton's Table is exact. In the original paper one cause of inexactitude was mentioned; others may be added, but for the practical application of tests of Goodness of Fit, it is sufficient that the method of fitting should be such that χ^2 does not depart far from its minimum value. In fitting the normal curve by moments it is easy to verify that Elderton's Table with corrected n^1 gives the exact distribution of χ^2.

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2. K. Pearson (1900).—On the criterion that a given system of deviations from the probable in the case of a correlated system of variables is such that it can be reasonably supposed to have arisen from random sampling.—*Phil. Mag.*, L, pp. 157, etc.

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6. K. Pearson (1912).—On a novel method of regarding the association of two variates classed solely in alternate characters.—*Drapers Company Research Memoirs*, Biometric Series VII.

7. G. Udny Yule (1922).—On the application of the χ^2 method to association and contingency tables, with experimental illustrations.—*J.R.S.S.*, LXXXV, pp. 95-104.

Note.—Professor Pearson has since admitted (*Biometrika*, XIV, p. 418) that Greenwood and Yule's tables (Inoculated—Not inoculated, Attacked—Not attacked) for Typhoid and Cholera are correctly treated by taking $n^1=2$. Presumably the same rule may now be allowed for other diseases. Professor Pearson has, however, opened a new and unexpected line of defence by claiming that these tables are not fourfold tables at all. It is difficult to be certain what distinction is in view; the only distinction mentioned is that "they" (Greenwood and Yule) "have arbitrarily fixed by the size of their inoculated and uninoculated groups two of the marginal totals." To avoid confusion of thought three points may be noted: (i) Greenwood and Yule did not in any sense fix the numbers inoculated and uninoculated, but accepted all suitable data reported; (ii) if the data had referred to experimental conditions in which the proportion of inoculated to uninoculated could be assigned at will, this circumstance would have made no difference to the distribution of χ^2, since the marginal proportion in the population with which the sample is compared is, in any case, identified with that of the sample; (iii) the proportion of inoculated to uninoculated involves only one degree of freedom; in order to diminish the degrees of freedom from 3 to 1 it would be necessary, on Professor's Pearson's argument, for Greenwood and Yule to fix, equally arbitrarily, the numbers attacked and not attacked by the epidemics. R. A. F.

[In regard to Mr. Fisher's Cases A and B no doubt has arisen. "A" is Prof. Pearson's original problem, and Case I in the article

in the last issue of ECONOMICA. " B," where the marginal totals (or the moments) are fixed and the same for all samples, is that treated by Mr. Fisher generally in the *Statistical Journal*, 1922, pp. 87-94, in the *Elements of Statistics*, pp. 371-2, and in Case III, ECONOMICA.

The whole difficulty lies in Case C, which corresponds to Cases II and IV. In Mr. Yule's experiment and in Mr. Fisher's treatment, the marginal totals are not kept constant (as they are in *Elements*, pp. 371-2), and the reconstructed population is adjusted for each sample (which is not done in Case IV) ; for in each of Mr. Yule's 350 samples the numbers occurring were compared with a population with the same marginal totals as in that sample. Mr. Fisher indicates, but does not give explicitly, a proof that the theoretical distribution of χ^2 in such a reckoning is very close to that found by Mr. Yule ; perhaps he should have emphasized that this is not merely a corollary to his important proof of the right treatment of Case B.

The problem is, to find the chance that so great a divergence from proportionality as is observed would be found in a random selection from an uncorrelated population. The solution given in ECONOMICA was that, if the proportions in the population were p_1, p_2, p_3, p_4, the result is that given above in connection with Mr. Fisher's formula (*A*). It was shown that the chance is greatest when $p_1 = (a + b)(a + c)/n^2$, etc., but it was not supposed that p_1, p_2 . . . varied from experiment to experiment as in connection with formula (*B*) ; the supposition was that many samples were taken from the unchanged selected population.

The dispute is not about the mathematics ; the doubt is whether the variation of samples supposed in ECONOMICA, or that supposed by Mr. Fisher and Mr. Yule, is appropriate to the problem. Prof. Pearson (*Biometrika*, XIV, p. 189) may be cited in favour of the ECONOMICA supposition.—A. L. BOWLEY.]

Book Reviews

English Local Government. IV: Statutory Authorities. By BEATRICE and SIDNEY WEBB. London: Longmans, Green. pp. 521. 25s. net.

With this volume Mr. and Mrs. Webb practically bring to a close their history of English local government since the Revolution of 1688. They propose to issue later a study of the relief of the poor; but since they here summarize the general result of their twenty years' labour, this is perhaps the best time generally to estimate the value of their work. It is a small thing to say that it marks an epoch in its subject, for, previously, no general treatment of the period had been attempted. English local history, indeed, has been in a special sense a thing of shreds and patches. We have had admirable single monographs on special functions, as in Miss Leonard's *Early History of Poor Law Relief*. In the pre-scientific period there was an abundance of county and borough history, some of which, as Hutchins' *Dorset* or Hasted's *Kent*, contained antiquarian knowledge of real value. Scholars like Mr. W. H. Stevenson have shown in the case of Nottingham what can be done with the records of a single town when they are entrusted to competent hands. But a general survey of structural and functional development had been attempted by no one; and even the materials for its study were rarely to be met in printed form. From a mass of practically unknown material Mr. and Mrs. Webb have built an analysis of institutions which will do much to advance the reputation of English scholarship. These volumes, and, in particular, the present instalment, go on the shelf alongside Stubbs and Maitland. I do not think that either would resent their company.

For from whatever point of view these volumes are regarded, their achievement is very great. They have added new figures to our history; the school books of the next generation will make Merceron and John Sherratt illuminating examples of what a democracy must avoid. They have recreated institutions like the Corporation of Romney Marsh which will be as significant in the constitutional history of the future as the East India Company in the past. They have enabled us to see the principles of the structure in their daily working. The present volume is a particularly good instance of their method, since it is not only a description of a multiplicity of statutory commissions at work, but also an invaluable discussion of the principles which, as they conceive, lie at the basis of the evolution they describe. I think it is probable that detailed work will affect the emphasis Mr. and Mrs. Webb have given to particular points; but no one who does not work from materials at least as wide will be entitled to challenge the substance of their inductions.

From the period Mr. and Mrs. Webb have surveyed certain general conclusions may be said to emerge. The roots of change have lain in the slow acceptance of five principles: (i) The association of a continuously larger electorate with the ultimate control of the elected body. (ii) The failure of non-intervention on the part of the central government and the acceptance of a final control at Westminster. (iii) The replacement of the *ad hoc* body by the magni-competent body. (iv) The realization of the need for a special body of experts in the service of local government. (v) The transformation of the local bodies from a system of vocational organizations into a system conceived in the interest of at least those consumers who are rate-payers.

The first four conclusions are beyond all question. As the old obligation to serve decayed, as the principle of self-election became increasingly the nurse of corruption, as the power of landed property slowly gave way before the power of the new business men, it was inevitable that the old chaos of a practically complete decentralization, where authority was in the hands of a few local men, should prove insufficient. The new towns, on the one hand, the immense growth of pauperism, on the other, gave rise to problems which were insoluble upon the older method. Criticism will mainly centre on Mr. and Mrs. Webb's description of the system in vocational terms. Is it accurate to describe a seventeenth-century manor as an Association of Producers? Mr. and Mrs. Webb adduce weighty considerations on their behalf. The names of the typical officials, pigringer, hayward, herdsman, pinder, all bear the character they have invoked. The position of freemen in the municipal corporation seems to indicate the defence of a common interest in a kindred vocation against the claims of outsiders. Originally, on this view, the interest of the freemen was coincident with the interest of the locality. When industrial change brought a complete separation between them it was natural, by evolving a democratic electorate, to make the control of local authority centre in those who paid for the services it performed.

It is a fascinating hypothesis; but it is, I think, a little too simple for the complex facts involved. That control was vested in a body of men whose position in society was not dissimilar is true enough; and, especially in rural England, virtual identity of occupation is obvious. But the real unity of interest between them is surely less their character as producers than their character as owners of property. It is the slow erosion of property-rights that explains the evolution Mr. and Mrs. Webb have traced. The interests protected by the legal framework prove so inconsistent with social well-being, appearing in the later part of their period what Bentham called "sinister," that it is impossible to preserve them any longer. They are protected, not because they belong to producers as such, but because they belong to the owners of property as such. I agree that Mr. and Mrs. Webb's explanation gives us a real clue to the

import of mediæval organization. But in that period social rights were, not merely in theory, coeval with social duties. The turning-point is the Reformation which began the evolution of a society distinguished upon the basis of functions into a society distinguished in terms of the amount of property held by the individual. The theory of grace came to beatify the owner of property; and the legal system translated his supposed favour in the eyes of God into a system of rights. Their transformation into a more modern and less prejudicial form can then be associated, on the one hand, with the economic changes which Mr. and Mrs. Webb so well describe, and, on the other, with that philosophic movement which, beginning with Copernicus and Descartes, was, in the rationalism it implied, ultimately fatal to the implications of Calvinist economics. This view is not incompatible with an acceptance of much that Mr. and Mrs. Webb urge, but it renders needless that sharp antithesis between producer and consumer which, as I suspect, goes beyond the facts they summarize.

It is good to note that in this volume Mr. and Mrs. Webb do justice to the great services of Bentham, whose influence in the movement for reform is ten times as great as that of any other man. They underrate, I think, the degree to which the theory of an ultimately undifferentiated democracy, of which Bentham was the chief exponent, was grounded in the hostility of Nonconformists to a state predominantly Anglican in texture. Rainsborough, Paine and Price, whom they quote in this connection, were all Nonconformists; and the two last welcomed the American and French Revolutions not least because they provided reason for the citizenship of men who had previously, on mainly religious grounds, been excluded from political power. The democratic temper of the Puritan revolution is, similarly, at bottom the offspring of religious considerations. It is not the least tempting speculation in English history to inquire what would have occurred if the plan of William III for a large religious comprehension had been successful. Probably, in that event, the Chartist Movement would have been anticipated at least by sixty years.

HAROLD J. LASKI.

Food Production in War. T. H. MIDDLETON, K.B.E., C.B., LL.D., Deputy Director-General, Food Production Department. Oxford: Clarendon Press. Carnegie Endowment for International Peace. pp. 373+xix. 1923. 10s. 6d.

Supplying Britain's Meat. GEORGE E. PUTNAM, B.Litt., Consulting Economist to Swift and Co., Chicago, U.S.A. Harrap and Co. Ltd., London. pp. 168. 1923. 5s.

Sir Thomas Middleton states that the purpose of his volume upon *Food Production in War* is "to preserve for use in time of peace, facts and considerations respecting the output of food by the soils of the United Kingdom which were forced on our attention in time

of war." This record of the conditions of agricultural production between 1914 and 1918 is of serious interest and importance in treating of questions of food supply and of the capacity of the United Kingdom to increase the quantity of its home-grown produce under abnormal conditions; it is also the narrative of one who played some considerable part in the events set down and, lying somewhere between a memoir and a blue-book, it may be regarded as an authoritative statement at least of the administrative point of view. The book begins with a survey of the position of agricultural production in 1914, both with regard to crop husbandry and animal husbandry; this is followed by a consideration of home-grown food supplies and a discussion of the controversial issue of the food produced on grass land when contrasted with the output of ploughed land. Each of the war harvests is then described and the development of the Food Production Campaign is outlined with special reference to the difficulties of farmers in obtaining supplies of labour, fertilizers, and machinery, and in the light of the changing military and naval position. In conclusion, certain of the results of war-farming are summarized; an estimate is given of the cost of the Food Production Department, and some reference is made to the post-war difficulties of peace farming.

There can be no doubt that this work is a solid contribution to the economic history of one phase of war activity, but it is more than a serviceable chronicle of events and policies; raising continually critical issues in agricultural policy, it goes without saying that the arguments in sections such as Chapter IV are open to challenge, and even the view of events as, for example, of the influence of the Food Production Department upon the harvest of 1918, may be contested. Sir Thomas Middleton has the great merit of coming out into the open to defend his ploughed fields, and from many standpoints it is rather an advantage than a drawback that one feels at times a whiff of the burning heat of controversy in these pages.

A few salient features of this treatment of the Food Production question may now be noticed; firstly, it is a description of policies to be judged with reference to war conditions; this is the justification of the use of quantity of output as a measure of success or failure in farming, and of the calculation of food values of the products. The whole book is, in fact, a striking commentary upon the clear and decisive difference between food production in war-time and peace farming; to be able to write a book upon agricultural output without more than a very general reference to levels of prices, money-values of different kinds of produce, and costs of production, is a characteristically war-time achievement; without pressing this point too far, it seems to suggest, for example, that decisions affecting the distribution of grass and plough land taken in 1917 have a very limited bearing upon the same question in 1923. Even for the period, 1915-1918, one cannot help but think that Sir Thomas Middleton would have strengthened his position by giving

more weight to the problem of the interaction of prices and quantities of agricultural produce ; it is very unlikely that the volume dealing with control of food prices can contribute such a first-hand view of this question as an agriculturist like the present author.

A second issue, which is one of the key-notes of agricultural policy between 1916 and 1918, was the ploughing up of temporary and, later, of permanent grass land in order to increase the quantity of cereals. In the historic feud between Cain, the tiller of the soil, and Abel, the animal husbandman, the author is emphatically upon the side of Cain ; he points out, of course, that there is no technical difficulty in combining additional tillage with live-stock husbandry, but, in fact, there was genuine difficulty with present systems of production in making such a change rapidly, and in the prospect that the extra tillage could not be maintained in time of peace. With regard to the Food Production Campaign and the general question of food supplies, Sir Thomas Middleton places the main emphasis upon the harvest of 1918 as a justification for the policy pursued and the work accomplished. There seem to have been the two broad views of the situation, the one that the United Kingdom should simply try to hold her own in the quantity of food produced ; that in the growing shortage of skilled labour, manures, and machinery and in view of the overseas position, it was not wise to do more than this, as it might cripple effort in other directions ; the other attitude, strongly stressed in these pages, that extra areas of permanent pasture should be put under the plough so that we might achieve a tillage area equal to that of 1870. The submarine difficulty brought the latter view into ascendancy in 1917, and the author claims that the extra quantity of produce equalled thirty days' food supply for the whole country, apart altogether from the saving of tonnage, etc. ; home produce gave supplies for 155 instead of 125 days of the year on these calculations ; on the general question as to how far Britain could feed her own population at present standards of living, the view is expressed that there is not the slightest possibility of doing this. The statement is as follows : " It would require more than 20,000,000 acres of land to supply the grain alone that is consumed in the country, and to secure this quantity of grain it would be necessary to plough every acre of cultivated land not subject to flooding and not too far above sea level to prevent corn from ripening. The cost would be prohibitive . . ." (p. 324).

It is of interest to note that the references to the Corn Production Act of 1917, with its policy of guaranteed prices for wheat and oats, are very critical. It is spoken of as " boomerang " legislation, and the author makes the point that no credit for the harvest of 1918 is due to this law, as all the preparations of the Food Production Department were made under " Dora " before the Act was passed, and its coming into force created difficulties as the compulsory powers were less ample than those previously enjoyed by the Department ; in fact, the whole treatment of what the ordinary

man considered the most notable agricultural legislation of the war period seems hardly clear or adequate in the circumstances. The statement is made (p. 204) that the discussion which the Bill aroused led not so much to the success of the Food Production Campaign as to its ending; this may mean that the Act rendered certain administrative activities unnecessary in connection with food production, or it may mean that the Act injured the output of food, and the context gives weight to this latter interpretation; but the ordinary person would have thought that the guaranteed prices would have reacted upon production of cereals in 1918, and eased the position created by the application of compulsion to farmers.

Coming to what may be called the "deflation" period in agriculture, as in many other spheres, the reader cannot help being struck by the change of atmosphere and outlook; it is now once more prices, costs, and paying one's way, commercial agriculture after food production. The plough land is rapidly reverting to grass, and one cannot help but feel regard for Sir Thomas Middleton, the robust out-and-out champion of tillage, disappointed but still a stalwart upholder of the plough, as he writes: "This book will have failed in its purpose if it has not shown that within the United Kingdom there are several million acres of land which, although not idle from the farmers' point of view—for they are paying rent and providing some profit—are idle from the national standpoint, inasmuch as they employ very little labour and produce far less essential food than they did in former years" (p. 340). The guaranteed price policy has gone, and tillage farming requires more labour and capital and involves more risk than grass farming; what is then to act as the counterpoise to swing the balance towards tillage? Three suggestions are made: the first is not directly connected with British agriculture or under its control—it is that the recent course of events in the international production of meat and in its transport to British markets will so increase the competition in the meat trade as to tilt the balance in favour of tillage; next comes the not very hopeful idea that the nation, being poorer than in 1914, should change its habits of consumption and procure its supplies of energy from cheaper foodstuffs rather than from the expensive meats; this "back to porridge" theory is sometimes associated with the idea of cancelling out some of our food imports in order to "restore" the balance of trade, but, happily, Sir Thomas Middleton is very careful not to commit himself to any view of the future of British foreign trade. The third suggestion is an adjustment of burdens of taxation on land in such a way as to discriminate in favour of ploughed land; the principles "familiar in connection with the income tax" would be applied to give relief to ploughed land. It is not possible to discuss this notion, but it obviously seethes with difficulties both of principle and of application. Any criticism of the treatment of agriculture in the deflation period (Chapter XII) would hardly be fair to the author, as his subject

cannot be held to cover the peace policy of British farming, but his advocacy of a tillage policy in this connection leads one to remark that a very much wider outlook upon the quantities, values and costs of production of all kinds of home produce would require to be taken before one judged of the profitableness of increased tillage.

Sir Thomas Middleton deserves the goodwill of students for the way in which he has accomplished a difficult task and brought together in connected form a mass of material of great value to the economic historian; the book is stimulating and seems likely to cause controversy, and what one would hope for is that it may lead to the production of a volume upon the same issues written from the farmer's standpoint.

The study of Britain's meat supplies by Mr. G. E. Putnam is a clear, useful, and readable account of the sources of meat supplies, the market organization, and the American export trade; special attention is given to the packing industry and a careful examination is made of the report of the U.S. Federal Trade Commission of 1917-18 upon the meat trade. The author was formerly professor of economics in the University of Washington, and is now consulting economist to Swift and Co., the well-known firm of packers, at Chicago. Of recent years there have been a number of notable economic studies of the marketing of farm produce in the U.S.A., by Weld, Hibbard, Macklin, and other American economists, and now Mr. Putnam makes a valuable contribution along similar lines to British farm economics at a time when increasing attention of a critical character is being devoted to the methods and costs of sale and distribution of agricultural produce. The reader will find useful facts and figures clearly set out in these pages, and two matters of general interest mentioned in this book may be commented upon: first, with regard to the general survey of the world's meat supplies, Mr. Putnam comes to the conclusion that there is "scarcely any sound basis for apprehension" of a shortage; this statement is noticeable because it is contrary to the general opinion, even men who take an optimistic view of the world's food supplies generally do not commonly maintain that extra supplies of meat will long be available without extra costs. All that the author admits is that there are alternate periods of under-production and over-production. The other issue is the attack upon the U.S. packing industry by the Federal Trade Commission of 1917-18, and the uneasiness caused in Britain by that report which was quoted at considerable length in the report of the British Committee on Trusts in 1919. In Chapters V and VI a close examination is made of the various accusations levelled at the firms of unfair trading and of acting to the detriment of the public interest. Mr. Putnam states the case that the American report was an entirely *ex parte* statement, quite unjudicial in its nature and methods, that many of its facts can be quite easily shown to be without foundation and that the British committees were misled because they thought it to be the

result of a scientific and impartial investigation. It is well that this point of view should be known and tested, because public opinion in this country finds it hard to appreciate the notion of a public report which everyone discounts as inaccurate and biased.

R. B. FORRESTER.

History of Modern Europe, 1878-1919. By G. P. GOOCH. pp. 726. Cassell. 1923. 21s. net.

It is seldom that, in addition to summarizing that most recent history which remains still undigested in official document and propaganda pamphlet, a historian of contemporary Europe is also able to modify on a serious scale the traditional history of the last generation. Thanks to the Diplomatic Revelations of the last few years—complete and purposeful in the case of Russia, Austria and Germany, meagre and incidental on the part of the Allies—these have been the happy conditions of Dr. Gooch's work, and one can hardly give higher praise than to say that the man has been equal to the opportunity.

All who have faced the task of ordered exposition of the close-woven network of modern history will stop often to admire the ease with which in this book the events seem to fall naturally into place, and the clearness and objectivity of the resulting picture. The arrangement is not strictly chronological, but tends rather to group in each chapter the history of all the factors in a particular crisis which gives the chapter its title. For connected reading this is ideal; but one might perhaps suggest that, where the actual crisis is often of less importance than the diplomatic groupings which precede and follow, such chapter-headings combined with an index somewhat difficult to handle do not facilitate the use of the book for quick reference.

Other criticisms of technique would be the absence of maps, and the fact that while there is no general bibliography for reference, the full titles of books are often given only on the first occurrence. On this subject the reader may be referred to the paper recently published by Dr. Gooch, *Recent Revelations on European Diplomacy* (British Institute of International Affairs), as offering at once a bibliography, evidence of the author's tireless preparation for his task, and a separate summary of that new evidence which has been absorbed into the general story of the larger book. In view of that paper one need hardly review in detail these main points of difference from earlier histories of the period. Perhaps the most important are the actual terms of treaties like the Triple Alliance in its various phases, and the Reinsurance Treaty; the revelations of Russo-German relations during the Japanese War (especially the Bjorko meeting and draft treaty); Austro-Russian agreements on Balkan policy, 1896-1903, and the Russian intrigues against the neutrality of the Straits, notably in 1896, 1911 and 1914. Though not to the same extent "revelations," one may specially recommend

the sections dealing with the European situation during the second Boer War, the growth of the Triple Entente (notably the secret Morocco partition of 1904 and the naval conventions) and the peace parleys of 1917.

Dr. Gooch warns us that his history is solely of the inter-relations of the Great Powers (in view of which *Diplomatic History* would have been a clearer title). There are real objections to such an isolation of the intrigues of the chancelleries. An air of unreality is apt to come in when we consider, for instance, the diplomatic outworkings of French colonial policy, apart from the many relevant changes in French internal politics, or from the economic urge in the background.

The author's judicial fairness, especially on the causes of the Great War, has already provoked patriotic critics to indignant reply, but, till the opening of Allied archives shall have brought fresh light, the conclusions are not likely to be seriously modified. Here and there one may object, as where in the treatment of Venizelos and Constantine sufficient weight is not given to Mr. Abbott's recently released and well-documented revelations (mentioned in footnote) as against the view officially promulgated in the years of war; but such instances are few.

Three noteworthy features in general treatment may be mentioned: an adequate space at last assigned to the part played by journalism (incidentally causing one almost to sigh for an international news censorship, so often is the Press seen provoking or maintaining tension, so seldom reconciling or bringing understanding); an unusually liberal selection of well-chosen verbatim quotations from the speeches, dispatches and diaries of the chief statesmen and diplomats; and thirdly, those most concise and illuminating summaries of a policy, a statesman's influence, or a tangle of negotiations, of which one could only wish there were more.

The general effect of such a rapid survey as this of our age on its diplomatic side is something akin to disgust and despair. If only Dr. Gooch—or history—had stopped at 1914, we might have risen discouraged, but a little hopeful, content to blame our fathers and pity ourselves as heirs to an ineluctable entanglement and its inevitable consequences. But Dr. Gooch—and history—go on to 1919 and beyond, and the sight of the same spirit and tendencies, with nothing learned and nothing forgotten, in the last chapter as in the first, leads us to the truly hopeless dawn of the day which will not be other than yesterday. In view of that last chapter, and of the whole book, its title "The Settlement," and its last words—on the League of Nations as the great solution—seem but the last and most cruel irony. L. G. R.

The International Trade Balance in Theory and Practice. By THEODORE H. BOGGS. 1922. New York: The Macmillan Co. viii.+221 pp.

The theory of the "international trade balance" still occupies a

place in economic literature which its intrinsic importance by no means warrants. The only reason why people ever interested themselves in the relation between imports and exports was that they thought that growing natural poverty or growing national richness could be proven by reference to the "balance." Since no one now believes that this fundamental assumption, from which the trade balance acquired its ill-deserved importance, is true, the interest which the trade balance possesses is a strictly practical one. Inadequate as a means of testing the fundamentals of economic well-being, the trade balance still throws some light upon the processes of international economic intercourse. It is at best a very imperfect light, because the trade balance—if recorded imports and exports are thereby meant—has no concern with services, and the dimness of the candle is aggravated by the shakiness of the hands which hold it. Try as they will, the majority of writers cannot shake off the influence of the exploded ideas they themselves denounce.

The confusion on the subject was greatly increased when, in an evil hour for economic theory, Sir Robert Giffen invented the phrases "invisible imports" and "invisible exports." Instead of pointing out that these phrases do not really mean what they are supposed to mean, writers get into the habit of believing that there really are exports that are not exported, and imports that are not imported. But, of course, the phrases were not meant to be used in this way at all. They were intended to be explanations of why some exports did not at once result in imports which offset them, and why some imports did not lead to exports which offset *them*. They were intended to simplify the explanation of why, whilst recorded imports and exports did not balance, there was no reason to suppose that foreigners were presenting us with goods for nothing, or we were supplying them with goods on the same terms. But, when, instead of being used as terms of explanation, these phrases are used as if, in *addition* to actual imports and exports, there really were invisible imports and invisible exports, they become a positive danger to the exposition of the subject. Prof. Boggs is, unfortunately, not quite immune from the hypnotic influence of these phrases. On pp. 63-4 of his book he gives the reader a balance sheet of the Visible Credits and Visible Debits and then one of the Invisible Credits and Invisible Debits, the latter including capital borrowed, interest payable, net freight charges and the like. Services, of course, are not recorded, and are in a sense invisible, but why should capital borrowed be regarded as "invisible"? The fact is that Prof. Boggs, instead of using the phrases to explain *why* the exports and imports of the U.S.A. are what they are, not only relatively to one another, but also absolutely, *separates* "real" or "visible credits" from the very factors which should explain why they are what they are.

The modern theory is that, if a country has so much to pay for interest and services rendered and goods bought it will export goods

and render services to an amount sufficient to equate its debts by the debts due to it. The balance of payments or of indebtedness always balances: that is the fundamental dogma of modern economic theory. Consequently no light can be thrown by the balance of indebtedness on the state of the foreign exchanges. Nothing is more significant of the way in which many writers misunderstand their own theories than the constant attempt to explain the state of the foreign exchanges by the light of the balance of trade. No doubt, irregularity in the flow of goods and services on the two sides will cause fluctuations in the market rates of exchange, but fundamentally it is clear that if the balance always balances, one *cannot* explain the exchanges by the aid of the balance. Prof. Boggs rather implies, than states, that one can, as in the remark on p. 177, that "as a result of India's favourable trade balance, there was normally existent abroad a steady demand for remittance to that country." The excess of exports over imports was necessary to balance India's indebtedness: why should this improve the rate of exchange? On the practical side, Prof. Boggs analyses historically and critically the trade balances of the U.S.A., the United Kingdom, Canada, India, South Africa and Australasia. By contrasting "debtor" and "creditor" countries in this way, Prof. Boggs, of course, shows how the great flow of capital and interest affects the recorded imports and exports. There is nothing fundamentally new, but he brings together a number of countries not usually assembled together, and he is able to bring his analysis fairly up to date. Incidentally he does not always analyse his figures quite as closely as might be thought desirable, and his acquaintance with the latest British investigations on the trade balance of this country leaves something lacking. But, looking at his book from this point of view, it is a distinctly useful contribution to the literature on the subject.

T. E. G.

A History of the Canadian Pacific Railway. By HAROLD A. INNIS, Ph.D. P. S. King and Son. 1923. 365 pp. 12s. 6d.

As a piece of hard spadework, this book will be of material value to the future historian of the railways of Canada. The story of the expansion of the Canadian Pacific Railway system is told at great length in considerable detail, and the very numerous notes contain elaborate tables, showing the growths of traffics, earnings, expenses, equipment, operating work, etc. The detail is so great, that one is left with the feeling that Dr. Innis could not see the wood for the trees. In the preface, he states that "no conclusions can be reached in the matter of recommendations." There is no question that Dr. Innis has reached no conclusions, though we venture to doubt his use of the word "can."

Early in the book, an account is given of the huge subsidies granted by the Dominion Government to the railway at the outset—$25,000,000, 25,000,000 acres of land, and two completed sections of

line which cost, with surveys, $37,785,320. Later is quoted the opinion of the Railway Commissioners of Canada in the Western Rates Case " that rates based upon the Canadian Pacific's power to stand reductions would inevitably bankrupt . . . the Canadian Northern and the Grand Trunk Pacific . . ." Dr. Innis does not, however, bring the two together, and consider how far these stupendous subsidies were responsible for the situation as described by the Commissioners. There is certainly considerable evidence in support of the view that the bulk of the land grants were of only small assistance in financing the project, whilst they have been an important factor in the later very flourishing financial position of the C.P.R.

On pp. 226-229, when dealing with the earnings per train-mile, a muddle is made between cents and dollars. Earnings per freight train-mile from 1901 to 1910 are shown as rising from 1·82 cents to 2·92 cents. Clearly an error. Further, Dr. Innis does not appreciate the difference between passenger train-mile earnings, and the earnings per train-mile from passenger traffic. The distinction is important on a railway which works a large number of mixed trains. Such points as this and the opening sentence of Chapter IX—" The relation of total expenses to gross earnings was reflected in the operating ratio "—suggest that, whilst Dr. Innis is a painstaking investigator, he has not devoted sufficient time to the general study of railways before undertaking the task of writing a history of a railway.

In conclusion we would express our astonishment that a lecturer on Political Economy and a publisher of the standing of Messrs. P. S. King and Son should issue a railway history without a map. Again and again on a single page we find the names of six or eight insignificant Canadian places mentioned, and it is hopeless to attempt to follow the account of the expansion of the railway system without a map at one's side.

W. T. S.

The Northward Course of Empire. By VILHJALMUR STEFANSSON. pp. 274. George G. Harrap and Co. Ltd. Map and illustrations. 7s. 6d. net.

One can sympathize with Mr. Stefansson as he wrestles with the false conceptions about polar regions that have been steadily and conscientiously inculcated into generations of receptive and retentive childish minds. The frozen north, the midnight sun, the deathly silence of the long Arctic winter, the desperate adventures of the fur-traders—these appeal to the imagination, and the modern announcements, in the nature of scare headlines, of " Strawberries and Wheat grown within the Arctic Circle," and so forth have not been able to shake the fixed idea. The trained teacher of geography in this country does know and teach now that the Far North exhibits variety of climatic conditions as you move from west to east and

that the region of greatest cold lies not on the polar shores but in the interior, though he may be inclined to overestimate the importance of the fact that you can grow cabbages within the Arctic Circle. But old impressions are hard to get rid of and one hopes that Mr. Stefansson's book will be widely read. It is readable and remarkably free from technical jargon, and the author rarely allows his enthusiasm for the north to carry him far from the realms of common sense. His illustrations, especially those from personal experience, are often very graphic and to the point, and without apparently setting out to do so, he gives us plenty of local colour.

As regards the desirability of the north as a place to dwell in, one cannot help feeling that the disadvantages he describes far outweigh the advantages. A good climate for work, an almost complete absence of microbes, a cold that in places is less than that of North Dakota, plenty of meat in the form of caribou and musk-ox to be had for the hunting, and endless miles of wet grassland, suitable for rearing vast herds of reindeer, or domesticated caribou, creatures that need no stabling in winter, that fear no blizzards, that can dig their way through five feet of snow and can find a living for themselves through the long Arctic winter. To this must be added the possibilities offered for fuel, fish and mineral getting. To balance this we have some nine months of winter, with the long polar night, with frequent blizzards raging for two or three days at a stretch, a summer in which the thermometer frequently registers 100°F. in the shade, during which the frozen surface transforms itself into vast areas of grassy swamp. A diet composed entirely of meat. And then the flies and mosquitoes! " No matter how hot you are, you will have to wear thick enough clothing so that they (the mosquitoes) cannot sting through, with unpierceable gloves on your hands and a veil over your face. . . . Some say that the sand flies are worse than the mosquitoes because they will get inside your clothes and crawl all over you." Mr. Stefansson is much too honest to paint an attractive picture of the polar edge despite all his efforts. The intention of the author is to show that the Far North offers enormous possibilities as grazing lands, provided that reindeer and musk-ox meat can be popularized. One cannot congratulate the author on the name " ovibos." It is not likely to help in the popularization of musk-ox flesh on this side of the Atlantic. One cannot see oneself asking for five pounds of sirloin of ovibos. Polar beef would be preferable. The real value of the book, from the student's point of view, is that it will help to do away with some very false conceptions about the polar lowlands. There will probably always be people endowed with the real pioneer spirit who will prefer hardship and toil to the easier life of developed lands, some for the love of adventure, some for the sheer love of overcoming difficulties, like *Le père* Chapdelaine in Louis Hémon's beautiful but sad little romance of French Canada, and " there are people who will live in any place if the financial returns are adequate," as Mr. Stefansson himself

remarks. It is interesting to know that when the grasslands of North and South America and Africa prove insufficient to provide meat for the increasing populations of the world, there still remain the vast caribou plains of the North, but we will hope that the Malthusians will have solved the problem of over-population before the pressure on the means of subsistence drives men to settle there.

H. Ormsby.

Rural Education. A. W. Ashby, Institute for Research in Agricultural Economics, Oxford, and Phœbe G. Byles. Oxford: Clarendon Press. pp. 227. 1923. 2s. 6d.

An Economic Survey of a Rural Parish. J. Pryse Howell, Institute for Research in Agricultural Economics. Oxford University Press. pp. 31. 1923. 1s.

The survey of "Rural Education" in Oxfordshire by Mr. Ashby and Miss Byles aims at providing exact knowledge of the existing system and its practical working in 1920-21. The report is the result of much team work, and that may account for a certain colourlessness in outlook and lack of clearness in outline, although of course there is vividness in the detail collected at first hand. Oxfordshire, as the Master of Balliol points out in his preface, is well suited to bring out the peculiar difficulties of rural education: it is a county with no large towns and no important industry but agriculture; most of its villages are small, and it represents a rather belated stage in local education. The survey deals in Part I with elementary schools; after an historical introduction, a description is given of buildings and equipment, staff, curriculum, economic conditions affecting health, conduct, physique, and continued education; in Part II, evening schools and adult education are discussed. The account is a thoroughly useful piece of work, full of interest for those who desire to see the growth of a new rural civilization and packed with first-hand evidence on many points of wide social interest. Among the problems affecting the welfare of rural society which are touched upon are the question of the centres around which the social life of villages can be built up, the organization of technical instruction in agricultural subjects, whether occupational training should play any part in the curriculum of elementary schools, and the general position, psychological outlook, and standard of living of rural workpeople. It would certainly be of definite value if other rural areas were to make similar investigations and reports.

Mr. Pryse Howell gives, in thirty-one pages, an intensive and detailed survey of the farming business and of the social conditions of those engaged therein in a rural parish of 8,000 acres, and with a population ranging from 800 to 900 persons. The description covers the systems of farming, rotations, crops, manures, and so on, the size and rent of holdings, the farm equipment, production and

value of output, as well as the valuations of property and the costs of equipment ; in addition there is a large mass of detailed information regarding housing and families in an appendix. This brief and interesting study belongs to the field of rural economics and resembles very much the regional surveys which have recently been undertaken in different parts of this country. The value of such an investigation is considerable in agriculture, where local conditions of production vary so greatly and where generalization must be carefully tested unless it is to become a snare ; for the student it is a definite gain to survey a small area thoroughly as a check upon the interpretation of figures and descriptions of large countries. The method also seems to have a constructive use in dealing with certain types of agricultural problem, such as the size and character of holdings. R. B. F.

Society and its Problems. By GROVE SAMUEL DOW, Professor of Sociology in the University of Denver. George G. Harrap and Co. Ltd., London, Calcutta, Sydney. pp. 594. 10s. 6d. net.

This is a textbook designed primarily for the American reader. It seeks to cover the whole ground of theoretical sociology as well as to discuss present-day social problems and the lines of their solution. It contains a great deal of useful material, but the treatment of fundamental principles is sketchy, and the attitude to social difficulties complacently optimistic. M. G.

An Economic History of the United States. By ERNEST LUDLOW BOGART, Ph.D. New edition, 1922. pp. 582. Longmans, Green and Co.

This straightforward account of the "achievements of a people working under free competition, untrammelled by custom, tradition, or political limitations,"[1] although no longer the only attempt at a connected history of the economic development of America, is still the best introduction to the subject, whether for use in High School or College. This ninth reprint of the third edition has been entirely revised, some of the earlier part has been condensed and a new section has been added, covering the War Period and bringing the book up to date. On the whole the changes are all to the good. For instance, the Table of Wholesale Prices, 1810-1920, is full of interest, showing with remarkable clearness the effects of the war on prices, the increase in the class of American semi-millionaires, and the gradual levelling up of incomes out of the lowest into the medium classes.[2] It is doubtful, however, whether the main defect of the former editions has been remedied to any noticeable extent, namely, a rather scanty and superficial explanation of the relation of cause and effect in economic development. Hence the book remains of School rather than of University standard. On the whole it is readable, despite some unnecessary terminological

[1] Preface to the 1908 edition. [2] p. 528.

elongations (e.g., " transportation," " issuance," " foundational," " merchantable "), and well arranged. Mr. Bogart panders to the demand of the spoon-fed for minute page and paragraph references on each topic, and there are a certain number of printing errors.[1]

With regard to Part V it is questionable whether the time has yet come to allow of this period being written up with any attempt at true perspective, and it is impossible as yet to distinguish between temporary aberrations during and since the war, and permanent tendencies which will continue into the coming era. Perhaps Mr. Louis Ray Wells is wise, in his *Industrial History of the United States* (1922), in deliberately avoiding any attempt at treating the War Period as a whole. V. ANSTEY.

Cross-Currents in Europe To-day. By C. A. BEARD. 278 pp. Harrap. 1923. 7s. 6d. net.

There is always an unfortunate gap between the history-book and the daily paper. Part of that gap, for readers of the moment, is well filled by this book, and that must be the justification for the collection in permanent form of lectures on subjects whose connection is chronological and little more. There is much that is excellent in the individual lectures, but no general thesis, unless it be a subtle under-current of glorification of the U.S.A. and the predominant world-position thrust upon her by a decade of European chaos and borrowing.

The first section is an able review of the chief additions and revisions in the history of the last half-century necessitated by recent diplomatic revelations. The remainder consists partly of a review, based on numerous secondary authorities, of the main tendencies of the day—the economic results of the war and the peace, the industrial combinations in Germany, attempted monopolies of the world's oil-supply, the rise of Bolshevism, the awakening to self-consciousness to economic and political power of the peasantry of the East of Europe, and the fate of post-war socialism and the Internationales in the West; partly of more original contributions on American foreign policy, the Washington Conference and a comparison of the constitutions of the U.S.A. and of the new German Republic.

Professor Beard shows greater ability in the lucid analysis and summary of complex data than as a political seer, a vocation wherein, to do him justice, he seems to distrust his own success.

There is a useful short bibliography to the later sections of the book, and a special but incomplete bibliography to the Diplomatic Revelations. L. G. R.

Social Change. By WILLIAM FIELDING OGBURN, Professor of Sociology at Barnard College. New York: B. W. Huebsch. 1922. pp. 305.

This is an inquiry into the relative importance of biological and

[1] See, for instance, pp. 85, 94, 103, and 205.

cultural elements as factors in social change. It is shown that while the hereditary structure of man has changed very little since the Ice Age, the rate of cultural or traditional change has been very rapid. An important source of change is found in the development of material culture, while other cultural elements often "lag" behind. This is the source of many maladjustments. To show the importance of the general cultural situations for inventions, a rather interesting table is given of a large number of inventions which were made independently by different persons more or less at the same time. M. G.

School Notes

Students

The total number of regular students enrolled up to the end of April was 848, and the number of occasionals, 1,459, making the total of all students attending the School 2,307.

Examination Successes

The degree of Ph.D. (Economics) was conferred in February on Santibhusan Datta (Dutt) for a thesis entitled *A Criticial Exposition of Indian Constitutional Reforms.*

Alfred T. Kings and Sidney J. Madge have obtained the degree of M.Sc. (Economics).

Medals, Prizes and Studentships

Hugh Lewis Prize.—A prize of 21 guineas will be offered annually until further notice by Mr. Hugh Lewis for the best essay on a selected subject. Candidates will be restricted to students of the School, whether day or evening, who are registered as Internal Students of London University studying for a first degree, and who have passed their Intermediate Examination not more than two years from the date of competition and are proceeding to their Final. No conditions will be attached as to the manner of expending the prize money, and a certificate will be given to the successful candidate as a permanent record. Essays, which should be received by the Director not later than February 1st, should for 1923-4 be written on one of the following subjects :

1. The best future currency policy for Great Britain.
2. The relative economic importance to Britain of the British Empire and the rest of the world.
3. Methods of promoting Industrial Peace.

Farr Medal and Prize.—A medal and prize of books will be offered annually by Mr. W. J. H. Whittall in memory of Dr. William Farr, C.B., F.R.S., the vital statistician.

It will be awarded to the student who makes the best performance in the papers for Honours in Statistics at the Final B.Sc. (Econ.) Examination, the award being restricted to registered students of the School whose course of study has been pursued as Internal Students of the University.

A Research Studentship for post-graduate work of the value of £175 (in addition to remission of School fees), tenable for two years, will be awarded in July, 1923. Candidates should apply to the Secretary for a form of application which should be completed and returned by May 31st.

Two Scholarships of £50 (in addition to remission of fees) and six

Bursaries entitling the holders to remission of fees will be awarded on the results of a competitive examination to be held on July 14th and 16th, 1923. The examination will be limited to candidates entering for a first degree course in October, 1923, whose school record is satisfactory, and who can show that their financial circumstances render assistance desirable. Candidates must be over 17 and under 20 years of age on October 1st, 1923, and must be matriculated students of London University. Persons who are already students of the School are not eligible. Forms of application, which may be obtained from the Secretary, should be returned not later than June 15th.

Public Lecture

A public lecture on " Lessons from the New World to the Old," was given at the School by Prof. W. Caldwell, D.Sc., Lecturer on Moral Philosophy at McGill University, Montreal, on Thursday, May 17th, at 5 p.m. The Director of the School took the Chair, and admission was free.

Commemoration Week

The dates fixed for Commemoration Week were as follows :

Tuesday, May 29th	...	Old Students' Dinner.
Wednesday, May 30th	...	School Dinner.
Thursday, May 31st	...	Play—first performance.
Friday, June 1st ...	...	Dance.
		Garden Party at Malden (afternoon).
Saturday, June 2nd	...	Play—second performance (evening).

It is proposed that Oration Day shall be held on the last day of term—Friday, June 22nd.

The London and Cambridge Economic Service, of which Sir William Beveridge is Chairman, has now published four Bulletins and Supplements, and two Special Memoranda, the first on *Stocks of Staple Commodities*, by Mr. J. M. Keynes, assisted by Mr. R. B. Lewis, the second by Dr. T. E. Gregory on *Tariff Changes in Relation to British Trade*. The Service is working in co-operation with the Harvard Committee on Economic Research, which has for some years been circulating to subscribers, Letters, Bulletins and Memoranda bearing on the economic situation and outlook. The London and Cambridge Economic Service is continuing the statistical tables which appeared in the *Manchester Guardian Reconstruction Supplements* last year, but in a revised and more elaborate form. Professor Bowley is still in charge of the statistical work.

The Executive Committee is composed as follows :

Sir W. H. Beveridge, K.C.B. (*Chairman*), London School of Economics.

Professor A. L. Bowley, Sc.D., F.B.A., London School of Economics.

Mr. H. D. Henderson, Economics Department of University of Cambridge.
Mr. J. M. Keynes, C.B., Economics Department of University of Cambridge.
Mr. H. J. Spratt, Central Council for Economic Information.
Mr. C. Tennyson, C.M.G., Federation of British Industries.
Sir Charles Addis, K.C.M.G. (*Hon. Treasurer*).

All communications should be addressed to the Secretary, London and Cambridge Economic Service, Houghton Street, Aldwych, W.C.2.

Books Received

M. Briggs: *Textbook of Economics.* University Tutorial Press.
W. J. Weston: *Banking and Currency.* University Tutorial Press.
F. V. Walters: *Money and Money's Worth.* The St. Catherine Press.
Sir A. Goldfinch: *State Control in War and Peace.* The St. Catherine Press.
S. W. Pascall and Others: *Cambridge Conference.* National Movement towards a Christian order of Industry and Commerce.
H. Dalton: *The Capital Levy Explained.* Labour Publishing Company.

Periodicals Received

Giornale degli Economisti.
La Reforma Sociale.
Journal of Indian History.
Bollettino della Emigrazione.
Zeitschrift für Volkswirtschaft und Socialpolitik.
The Irish Economist.
The Sociological Review.
Political Science Quarterly.
Citta di Milano.
Metron.

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Graham Wallas

THE retirement of Graham Wallas from the Professorship of Political Science in London University cannot go unmarked in this journal. It is not only that he has been, for almost a generation, one of the best loved teachers in the School of Economics: it is not only that his administrative services to the University have done much, especially since the war, to increase the quality of its work—it is, above all, because in three ways Graham Wallas has left an unique impression upon the political thought of the last thirty years. His books, in the first place, have sounded a genuinely original, and always important, note. The classic *Life* of Francis Place marks the beginning of that research into the social life of the last century of which the works of Mr. and Mrs. Hammond and Professor Elie Halévy are the most distinguished recent examples. His *Human Nature in Politics* has started a tradition of its own; and no study of government can now be deemed adequate which fails to take account of its conclusions. As a teacher, secondly, Graham Wallas has been the first English lecturer in the social sciences whose relationship with his pupils has had the same stimulating influence as that of Sir J. J. Thomson upon the Cavendish Laboratory. He made the School of Economics not merely a centre of research, but a centre of research that had co-ordination and design. And, thirdly, his work was not conducted in a vacuum of abstraction. Long years of service upon the London School Board and the County Council brought to his thinking the bracing atmosphere of practical experience. He did not merely analyse elections; he fought them. He did not merely psychologize about committees; he made them fruitful in the day to day business of a great public authority. He has shown, as no other personality in the English academic world has shown, that the study of contemporary events may be invested with the same eager and impartial zeal for truth as distinguishes the physical sciences.

But neither the students nor the staff of this school can regard Graham Wallas as an Emeritus Professor. They prefer to believe that he has merely taken a little more leisure for the completion of the great intellectual task to which he is devoted. They look forward to that discussion of Bentham's influence, about which Graham Wallas' knowledge is unique; they clamour for that study of the Civil Service for which no man is better equipped; above all, perhaps, they demand that book on local government which, more than any other, will enshrine for them memories of lectures which have moulded the outlook and determined the inventiveness of many officials, elective and appointed. And, more even than his books,

they want Graham Wallas back with them year by year, in part to lecture, but, supremely, to sit in Socratic discussion, and by the free interchange of mind to make them feel the vast importance of seeking to contribute to the sum of social truth. They regard Graham Wallas, in fact, as the permanent member of the Department of Political Science. If he has gone to the House of Lords, so to speak, he must still answer questions and make speeches, and show new generations how the art of government is made. For they know that from him, as from few teachers in the years since T. H. Green, there has come that sense which John Stuart Mill emphasized as the noblest function of a university. "It should present all knowledge," said Mill, "as chiefly a means to worthiness of life, given for the double purpose of making each of us practically useful to our fellow-creatures, and of elevating the character of the species itself; exalting and dignifying our nature." The work of Graham Wallas has been, for twenty-five years, a noble illustration of that high purpose.

W. H. B.
H. D.
H. J. L.

The Restoration of the Gold Standard[1]

By Professor Gustav Cassel.

I am going to speak to-day on the restoration of the gold standard. The desirability of such a restoration is generally taken for granted, and is no controversial matter. Perhaps even too little so. The gold standard has without doubt its drawbacks. Even in the conditions obtaining before the war, gold had by no means a constant value, and the binding up of our standard with gold subjected it to all the variations in value which the yellow metal experienced. Economists paid much attention to these variations and to the inconveniences which the corresponding fluctuations in the value of money or in the general level of prices caused to the economic life of modern society. But few of them would then have gone so far as to propose the abolition of the gold standard and the establishment of a scientific paper standard built on the principle of stabilization of the purchasing power of money.

The war, and still more the years of destruction after the war, have abolished the gold standard in most countries of the world. But no stable standard has been put in its place. What we have witnessed has been complete chaos in the world's monetary system. This result has so fully discredited the paper standards in the eyes of the general public that the desire for the return to the gold standard has become very general and very powerful. Those who have given closer attention to the subject have, of course, found out that the disturbances we have gone through have not left the usefulness of gold as a money standard untouched. In fact, the variations in the value of gold have, particularly during the post-war years, been so violent that the advantage and even possibility of using gold as a standard of value could not but be seriously doubted. Still, the horrors of the paper currencies were so frightful, and the distrust in any official regulation of the standard of value had become so deep, that people were quite ready to accept even a bad gold standard rather than surrender the standard of value to political influences.

People were naturally inclined to wait and see whether the value of gold would not stabilize itself, and gold thus become a more suitable basis of our money systems. But this view of the matter

[1] A lecture delivered at the London School of Economics on June 18th, 1923.

involved a serious mistake. Gold can attain a stable value only when it is bound up with important money systems, and the failure of European countries to revert to the gold standard has without doubt very considerably contributed to the lack of stability of the value of gold during the last few years. Almost the whole burden of the stabilization of the value of gold has been thrown upon the United States. The fate of gold became identified with that of the dollar. In the first years after the end of the war, the dollar underwent violent fluctuations and the value of gold had to follow suit. A stability in the value of the dollar which could at all be regarded as satisfactory has been attained only in the last two years. The present relative stability in the value of the dollar seems to be the result of a deliberate policy on the part of the Federal Reserve Board. The gold supply of the United States is so abundant that it could give reasonable support to a much more extended structure of credit and, thereby, to a much higher level of prices. But the Federal Reserve Board has seen the dangers and drawbacks that such a development would involve. With gold reserves covering three-quarters of the total daily liabilities, notes and deposits included, the Federal Reserve Banks have applied a restrictive credit policy aiming at a certain stabilization of the supply of credit, and thereby of the purchasing power of the dollar. The result of this policy has been that the marked tendency to a rise of prices which accompanied the present boom of American trade has been checked. In fact, American prices already show a tendency to a moderate fall.

This American policy has had the most wholesome effect on the value of gold, and, indeed, has already made the return to the gold standard for other countries much easier and, indeed, much more advantageous, than it seemed to be only a year ago.

The outlook for the future development of the gold market also seems reasonably favourable. The time of the huge surpluses of the balance of trade of the United States has gone, and the result has been a gradual falling off of those huge monthly net imports of gold to the States, which were made possible only by drawing upon the accumulated gold reserves of the rest of the world. At the present rate of gold imports the United States are not taking more gold than corresponds to a part of the world's current production of gold. Thus a gold flow to America is no longer any disturbing influence in the world's gold market. On the other hand, a great outflow of gold from the United States is not very probable, simply because there are few countries in the world rich enough to pay for it. There is, of course, always a danger that the desire to return to the gold standard might induce a series of countries to make extraordinary efforts to secure more gold. Such action would doubtless mean a fresh element of instability in the world's gold market. But since endeavours to this end would, as I shall explain later, be unnecessary and futile, we may hope that such disturbances of the

gold market will be restricted within narrow limits. Under this assumption we can reasonably expect the value of gold to remain fairly constant during the next years. The conditions for a return to the gold standard, therefore, seem to be favourable enough, and the countries which use this opportunity will really win thereby a fairly stable basis for their currencies.

So much about the desirability of a return to a gold standard. Let us now consider a little more closely the nature of the problem. The establishing of a gold standard means keeping the value of the currency of the country at a constant par with gold. That is the only essential part of the gold standard. Other sides of it on which people usually lay so much stress are, at the most, means to securing the end and often means of much less importance and urgency than people think. This is particularly so in the case of the accumulation of a gold reserve to " cover " other means of payment up to such and such a percentage. This " covering " is an idea which seems to exercise a somewhat mysterious influence on the minds of most people, and I should very much like to destroy this influence. For this purpose I wish to draw your attention to a truth which has a central importance for the clear understanding of our subject. *The " covering " of a currency can never give it a value which it does not possess by virtue of its own scarcity, and of the purchasing power which it possesses over commodities as a consequence of this scarcity.*

When we wish to establish a gold standard we must also be quite clear about another point : the parity with gold or with another gold standard should not be the result of any artificial regulations, such as the " pegging of exchanges " which took place during the war. The constant relation to gold must rest upon the simple fact that the internal purchasing power of the currency is in a stable proportion to the purchasing power of gold within a gold standard country. If we assume the purchasing power of gold over commodities to remain constant, the problem is, therefore, to keep the internal purchasing power of our own currency invariable at a given level.

The question is then only : which level should be chosen ? The general answer to this question is obviously : the present. The establishment of a gold standard does not in any way presuppose an improvement of a currency in the sense that its purchasing power over commodities would have to be raised. Every currency which has a stable internal purchasing power can be made a gold standard.

Still, the condition of the stable internal purchasing power is essential, and due attention should be given to it. For the stability of the purchasing power some pre-conditions must be fulfilled : there must be an equilibrium of the State budget at least to the extent that the Government is not forced to a fresh creation of paper money in order to fill out a gap in the budget. There must also be an equilibrium in the balance of payment between the country and the outside world at least to the extent that the country

is not forced to sell its currency abroad as an object of speculation in order to fill up the deficit. Further, it is necessary that the whole system of prices within the country should have reached a certain equilibrium, in the sense that it corresponds to what could be called an economic equilibrium. There must be an equilibrium between different groups of prices in accordance with general economic laws. The cost of production must be covered by the prices of production. Wages must not be higher than to allow of their being paid out of the return of the products; but on the other hand, they must be high enough to cover the cost of living. In these respects, as we all know, very considerable disturbances have occurred during the last few years, and it takes some time, and often severe efforts, to restore the different groups of prices to normal relations. Supposing, however, this preliminary work to have been practically completed, the way to a restoration of the gold standard is open, and there is no reason for further delay.

The rule that the new gold standard should be chosen in accordance with the actual purchasing power parity of the currency may be modified by a desire to restore not only the gold standard in general but that particular gold standard, and, therefore, that gold parity which the country had before the war. In some cases, where a country is very near to that standard, this desire is right and should be carried out, but then also our efforts must be deliberately directed towards this end. People sometimes seem to believe that there are natural forces of some mystical character which are bound to restore the currency to the old gold parity without any particular efforts on the part of the administration of the country's currency. Such people sometimes even go so far as to regard all deliberate efforts for the purpose as artificial, and pretend that " time " should be left to cure the currency without any artificial interference. This is, of course, pure nonsense. A country with a paper currency has that currency in its own hands, and the future value of it will entirely depend on the management of the country's monetary policy. Therefore, if, e.g., England wishes to restore the old gold parity of the pound sterling, England has in the present situation to increase the purchasing power of the pound—that is to say, to depress the present level of prices so far that the purchasing power parity of the sterling standard with the dollar will be raised to the nominal parity aimed at. The way to that result is indeed very short, and England can therefore attain the old gold parity without any considerable difficulty.

What England can do in this respect can also be done by certain other European countries. But for the rest of them the currencies are so depreciated that there should be no question of raising their present internal value to the pre-war parity with gold. People generally speak very lightly about such things. They believe, as I said, that such a restoration of the old gold parity will come of itself if only we have patience enough. But they are, as a rule,

absolutely unwilling to realize precisely by what means such a considerable rise in the value of their currency could be brought about. As children, they like to look at the pleasant side of things and speak of a rise in the value of their currency, but shrink from thinking on the other side of the matter, viz., the corresponding violent depression of the general level of prices, the consequent serious disturbances of trade, the check on production, unemployment, social unrest, etc. No responsible politician will deliberately take all these consequences on his own head. But still he does not hesitate to address a national or international assembly and declare in grand patriotic phrases that the value of the currency of his country should be restored to its old position! In this respect, as in so many others in modern politics, there manifests itself an unwillingness to face hard realities, a spasmodic clinging to beloved illusions and a desire to be left undisturbed in a fictitious world. It is the function of science to show the truth even when it is disagreeable, indeed, most of all when it *is* disagreeable. For people have a wonderful faculty of acquiring agreeable truths without any outside help!

The choosing of a new gold parity lower than that which prevailed in the prehistoric times before the war is generally called a devaluation, and this word has, in the ears of most people a rather bad sound. It is often believed that devaluation means a lowering of the value of the currency. But this is not so. The depreciation of the currency has already taken place, and the devaluation now at stake only means the recognition of the present lower value of the currency as an actual fact, and, of course, also the giving up for ever of all vague and futile expectations of a restoration of an historic standard. Such a devaluation is a wholesome process by which a new development of the country's economic life can be started. Until this step is taken there will unavoidably exist a great uncertainty in all economic calculations and the fear of the coming depression of prices will lie as a dead weight on any growing spirit of enterprise.

The International Financial Conference in Genoa, 1922, was, so far as I know, the first international assembly to recognize the necessity of devaluation and of an immediate return to that stability of monetary standards which is the primary condition for a restoration of gold as a unit of value. The first resolution of the Conference on the currency question is this :

> " The essential requisite for the economic reconstruction of Europe is the achievement by each country of stability in the value of its currency."

What this recommendation means is more clearly seen from the report of the committee of experts, on whose recommendation all the resolutions on currency were adopted. From this report you will allow me to quote the following lines :

> " The question of devaluation is one which must be decided upon by each country according to its view of its own special requirements. We think it important, however, to draw attention to some of the considerations which will necessarily weigh with any country in coming to a decision on this question. There is a prevalent belief that a return to pre-war gold parity is necessary or desirable for its own sake. There are undoubted advantages to be obtained by such a return, but we desire to point out that for countries where currency has fallen very far below the pre-war parity, a return to it must involve the social and economic dislocation attendant upon continuing readjustments of money-wages and prices, and a continual increase in the burden of internal debt. Regard being had to the very large debts which have been incurred since the armistice by many of the countries concerned, we are inclined to think that a return to the gold parity involves too heavy a strain upon production. We repeat that the decision must be left in each case to the country concerned, but we venture to suggest that a considerable service will be rendered both to its own internal economy and to the cause of European recovery by that country which, after reaching comparative stability in its currency at a point so far below the old parity as to make return to it a long and painful process, first decides boldly to set the example of securing immediate stability in terms of gold by fixing a new gold par at or near the figures at which comparative stability has been attained."

It is curious that hitherto no country has presented itself to receive that international laurel wreath which the Genoa Conference had thus offered as a reward for a resolute and realistic treatment of the currency problem. Finland and Czecho-Slovakia are perhaps the countries with debased currencies, where the recognition of the necessity of devaluation and of the creation of a new gold standard on a stable basis has furthest advanced. But a whole series of countries with depreciated currencies still stoutly refuse to take the necessary devaluation into serious consideration, and flatter themselves with vague ideas as to their ability to reach what they believe to be a more respectable standard of value.

I drew attention to this subject at the first meeting of the International Chamber of Commerce in London, 1921. The *Times* described the effect on the assembly as a " bombshell," and, perhaps, to a certain extent it was. But although many representatives could not fail to see the necessity of definitely abandoning the idea of a return to the pre-war standards, no representative of any country particularly concerned was willing frankly to declare himself ready to recommend such a policy to his own country. The same thing was repeated at the second meeting of the International Chamber of Commerce in Rome in March this year, where I repeated

my endeavour to set out the necessity of a policy aiming at the most immediate stabilization of our monetary standards. Indeed, the Genoa Conference was undoubtedly right when it said that a country which would first set the bold example would render a great service to the world.

The fixing of new parities for the different currencies will naturally make it impossible to maintain the monetary unions which existed in Europe before the war. It is, of course, practically impossible to restore the old Latin Monetary Union. It has already for many years been a fiction without any foundations in reality. This fiction has caused the countries concerned many difficulties, and it is at the present time for every one of them a great hindrance to a deliberate and independent monetary policy which only aims at taking care of the interests of the future and which must, therefore, be freed from all considerations binding it up with the past. For the development of sound international relations it is far better that every country should be free to create a stable currency of its own and thereby to lay the only reliable foundations for stable international exchanges.

Even in the case of the Scandinavian Monetary Union I believe that it would be sound policy at once to recognize the uselessness of any effort to restore the union. No doubt the present economic difficulties of Denmark and Norway are to a not inconsiderable degree due to a distrust in the future, caused by a fear of that further deflation which would be necessary in order to bring the currencies of these countries into parity with the Swedish crown. The maintenance of a fictitious union is therefore a very serious hindrance to economic recovery of the countries mentioned.

If we now take it for granted that a policy of stabilization is necessary, the question presents itself: by what measures can such a stabilization be carried through? As the internal value of a currency exclusively depends upon its purchasing power over commodities, a stabilization of this value can clearly only be attained by an adequate restriction of the supply of means of payment. The character of this restriction depends, of course, on the character of the means of payment used in the country. If they are supplied by the State as a paper money issued by the Government directly or indirectly for covering their expenses, the stabilization of the monetary standard clearly requires the stopping of further arbitrary creation of such money. This is so obvious that it is not necessary to waste many words on it.

We can, therefore, consider a country where all the means of payment are supplied in the way which, in a modern society, we are accustomed to look upon as the only normal one, viz., in the way of bank loans or discounts. In this case the adequate restriction of the supply of means of payment is always to a certain extent attained by a judicious discrimination on the part of the banks between the masses of different demands for credit brought

before them. But this limitation is never sufficient. The ultimate means by which the demands are brought down to meet the resources available and by which, therefore, any undue increase in the nominal purchasing power of the country is checked, is the *price* which the banks ask for their supply of credit, that is, the rate of interest they charge. As the central bank is usually the only bank issuing currency with legal tender, its rate of interest will have the deciding influence on the supply of all sorts of means of payment, and therefore ultimately on the nominal purchasing power which is at any moment at the disposal of the market. Thus the bank rate becomes the ultimate regulator of the value of the currency and of the general level of prices.

The restriction of particular forms of means of payment has a very subordinate importance, as the market will always find substitutes and equip itself with the amount of means of payment which the general restriction of credit established by the bank rate will allow. It has been said that the repayment by the British Government of huge amounts of treasury bills has unduly diminished the supply of means of payment in the British market. The reasoning is not convincing, and the result is hardly in accordance with the facts. The supply of means of payment in London is, as I shall presently show, rather abundant. At any rate, the restriction of the purchasing power of the public has not been more than what was necessary in order to bring down the general level of prices and thereby to raise the internal value of the pound sterling approximately to parity with the dollar.

It is often contended that the rate of discount, owing to the present disturbances of the exchanges, has lost its influence as a regulator of the international value of the currency. This is hardly true. The business world always finds ways to transfer capital to countries where it can be used more remuneratively, irrespective of the fluctuations of exchanges. If, e.g., the rate of discount in Stockholm is too low, the Swedish State bonds will rise in price, the import of such obligations from abroad will be stimulated and begin to exercise a certain pressure on the exchange value of the Swedish Crown on the international market. Likewise, when the rate of discount is low in London, demands on the British capital market from all parts of the world will make themselves felt, and even Americans will then, perhaps, sell their securities to London. It is unavoidable that in this way the discount rate still has a powerful influence on the international balance of payment and thereby on the rates of exchange. At any rate, an adverse balance of payment cannot be recognized as a hindrance to an immediate restoration of the gold standard as long as it is clearly possible to improve the balance by a moderate raising of the bank rate.

Let us now consider more particularly the case of those countries for which the restoration of the gold standard is already now within reach.

A year ago I wrote in a paper which I contributed to the quarterly journal of a Swedish bank, that it would be desirable that the United States met Europe half-way by a small reduction in the value of the dollar, i.e., by a credit policy of such a liberal character as would cause a rise of prices in America by, say, 10-15 per cent. This would make it possible not only for England but even also for Sweden, Holland, and Switzerland to restore within a short time the gold standard according to the old parity. Now this desire has in fact been fulfilled, inasmuch as it depends on the United States. In April, 1922, the wholesale price index number (Bureau of Labour) was 143; in April this year the same index had risen to 159. If we reckon from the beginning of 1922, when the lowest point (138 for January) was attained, the rise is still greater. We can, therefore, now definitely state that a rise of prices of 10-15 per cent. has taken place in America.

The result which I expected from this rise of prices in America has also been attained by one of the other countries concerned, namely, Sweden. The Swedish crown has, from October, 1922, been practically in parity with the dollar. But then also the price level in Sweden was reduced during a period when the American price level was rising. The Swedish index number (Svensk Handelstidning), which in April, 1922, stood at 165, had in April, 1923, gone down to 159, and thus at that time stood at the same level as the American index just mentioned. The fall of the Swedish price level was still more pronounced during the autumn of 1922. In October the figure 155 was reached, but then the American index also stood at 154. Both index numbers have risen since that time and were, as I said, equal for April this year, at 159. During this half-year the dollar has been quoted, in Stockholm, practically at par, and the coincidence between the index figures, therefore, seems to indicate a real parity of purchasing power between the two currencies.

In the case of the other European currencies which I mentioned, the situation is different. None of them has succeeded in reaching the full parity with the dollar in spite of the considerable fall of the internal value of the dollar. The cause is simply that the internal value of these currencies has been reduced too. According to the *Economist*, the English wholesale price level (referred to 1913 as 100) stood in April, 1922, at 159, but a year later at 165. Had it been possible to keep the price level in England at 159, it would now have been precisely equal to the American. As a matter of fact, the English level has risen 4 per cent., and the mean dollar exchange for April, 1923, is also $4.66 (against par = $4.87), which means a disagio of approximately 4 per cent. Naturally this complete agreement between the disagio and the difference of the price levels is somewhat occasional, depending as it does on the price level one chooses for comparison. Still, this agreement seems to point out very clearly the real connection.

In Switzerland the rise of prices has been more acute. In April, 1922, the wholesale price index (according to Dr. Lorenz) was 161. In March, 1923, this index had risen to 186. This rise is considerably greater than the simultaneous rise of prices in America, and has also been accompanied by a fall in the exchange value of the Swiss franc in New York. In Holland the price level has experienced a small reduction, from 161 in April, 1922, to 158 in February, 1923 (Centr. Stat. Bur.). This reduction has hardly been quite sufficient to restore full parity, but the disagio of the Dutch florin does not amount to more than 2 or 3 per cent.

Under such circumstances a closer study of the way in which the countries mentioned have administered their currencies is of the greatest interest. It strikes one immediately what considerable differences there are between the discount rates applied in the different countries. At present the discount rate of the central bank is 3 per cent. in England and Switzerland, 4 per cent. in Holland and 4½ per cent. in Sweden. All these rates have been maintained since the middle of last year. In New York the corresponding rate from the same time stood at 4 per cent., but has been, since February 23rd, 1923, 4½ per cent. We are then obliged to put to ourselves the question whether the discount rates in England and in Switzerland have not been kept too low, and whether even in Holland the rate is not, at least for the present, somewhat too low. As a matter of fact, Sweden, where the bank rate has been kept over, or at least on a level with, the American rate, is the only country where full parity with the dollar has been attained.

Of course, the official discount rates in different countries are never quite comparable. The discount rate of the central bank may have a different position in the system of the various interest rates of the different countries. It is necessary to have regard to this fact when we wish to compare the bank rates of the different countries. However, it seems to be clear that it has *not* been possible to keep a 3 per cent. bank rate either in Switzerland or in England as against a 4½ per cent. bank rate in New York without causing thereby a relative deterioration of the internal value of the Swiss or English currency in comparison with that of the dollar.

In Switzerland the note circulation from the end of April, 1922, to the corresponding date 1923, has increased by 11·4 per cent. On August 17th, 1922, the Swiss central bank reduced its discount rate from 3½ per cent. to 3 per cent. The more liberal credit policy thus inaugurated has not been without its effect on the Swiss currency. The note circulation, which showed on August 23rd a minimum of 725 million francs, rose to 976 million francs at the end of the year, and stood at 915 million francs at the end of April, 1923. It is impossible not to recognize in this considerable increase in the note circulation, with the consequent rise of prices, an effect of the too low rate of discount.

The supply of means of payment in Switzerland seems at present

to be extraordinarily abundant, at the same time as a considerable scarcity of capital continues to exist. The result is an abnormally great difference between the interest rates for short and long loans. The market rate for discounts showed a mean for 1922 of 1·68 per cent., while the owners of real estate had to pay a mean interest rate to the mortgage banks of 5·83 per cent., and these banks themselves had to pay interest on their bonds at a mean of 5·16 per cent. The corresponding mortgage rates in a normal year such as 1913 were respectively 4·64 per cent. and 4·32 per cent., whereas 1913 showed a mean figure for the market discount rate of 4·52 per cent. The present proportion between the rates for short and long loans must, therefore, be regarded as abnormal.

In England the bank rate was reduced in 1922 from the earlier high levels to 4 per cent. on April 13th, 3½ per cent. on June 15th, and eventually to 3 per cent. on July 13th, 1922. In April, 1922, the price level, according to the *Economist*, stood at 159, and in September at 156. This is the lowest level attained. From that time prices began to rise and the index number is brought up to 165 in April, 1923. This seems to show that the real situation of the capital market has not allowed such a low bank rate as 3 per cent. As soon as this rate has been able to work out its effects the new rise of prices sets in, which prevents the pound from reaching its full parity with the dollar.

Just as in Switzerland, a sharp disproportion between the rates for short and long loans makes itself felt in England. The rates for long loans are still rather high, about the same as in Sweden, say, between 4½ and 5½ per cent., while the market rate of discount shows a mean figure for April this year of 2·10 per cent. Thus the money market is very easy, whereas the capital market reveals a considerable scarcity.

This peculiar and somewhat abnormal situation seems to me to stand in a direct connection with the rate of discount maintained by the central bank. This rate is, as we know, the factor by which a suitable restriction is placed upon the supply of means of payment in a country. If now this rate is kept lower than the real circumstances permit, the nearest consequence must be that the money market is well supplied, whereas the capital market still remains restricted. Why, then, is not the superfluous supply of money used for long investments, and why is not in this way an equalization between the different rates brought about? The answer to these questions must be: that the market more or less consciously feels that a rise in the bank rate must come, and keeps back the long investments in expectation of the fall of securities which is then bound to take place.

When, under such circumstances as those now described, it is said that the bank rate is too low, the usual answer is that the market is so abundantly supplied with means of payment that a higher bank rate is not called for, and could hardly be maintained

without the bank losing all control of the market. There seems to be a certain danger, particularly under such circumstances as the present, that people deceive themselves by such reasoning. The superfluity of money is perhaps not, as people believe, an independent phenomenon, but may be, as has already been stated, a consequence of the too low bank rate. Nor has the central bank in such a situation so completely lost its power over the market that a raising of the bank rate would be without effect. The market is always in one way or another dependent on advances from the central bank, and if the conditions for these advances are made more stringent, the market must by and by be induced to effect repayments and to restrict further demands. The result must be a more scanty supply of means of payment and a restriction of the market for short loans, whereby its rates will attain a more reasonable proportion to the rates for long loans. At the same time the reduced buying capacity of the public must gradually show its effect in a fall of prices or at least in a check to any further rise of prices.

The logical conclusion of this discussion seems to be that the present situation would require a raising of the bank rates in Switzerland as well as in England and probably also in Holland. But, of course, these matters are of such difficulty and the practical handling of these questions requires such an experience and such an intimate knowledge of the particular conditions of the country concerned, that it must be left to the responsible authorities to decide for themselves what course is the right one at any given moment. The only thing which a scientific man, and particularly a foreigner, can do in these matters is to offer his reasonings and his criticisms for what they are worth. Still, I must say that it does not seem very reasonable to believe that a rise in the value of the European currencies in comparison with that of the dollar can be attained so long as the discount rates in Europe are kept essentially and disproportionately lower than those of the United States.

The United States have, during the latter part of 1922 and the beginning of the present year, had a rising tide of prosperity, which would have caused a certain rise in the general price level even in spite of the relative high rate of discount. People in Europe seem to have put too much trust in the fall of the internal value of the dollar which would thus be brought about and from which they hoped to attain that dollar parity, for the realization of which the European countries were not themselves willing to make sufficient efforts. There seems to be little reason for adhering to such expectations now, since the deliberate restriction of credit in the United States has shown itself sufficient to put a limit to further rises of prices and probably also to cause a moderate reduction of prices. In such a situation we must understand in Europe that the restoration of the dollar parity is dependent upon our administration of our own currencies and above all upon our discount policy.

The real basis for the foreign value of a currency is always the

purchasing power which that currency represents on the home market. The maintenance of that purchasing power depends on the stabilization of the internal price level, which in its turn depends upon a proper restriction of the supply of money. These conditions being fulfilled, the keeping of a definite gold parity corresponding to the internal purchasing power of the currency does not offer any particular difficulties. The international exchange value of such a currency will necessarily gravitate to its purchasing power parity with the gold currencies. All that is necessary is to keep the temporary fluctuations from this equilibrium within due limits. In the present circumstances this means practically that the dollar rate must be stabilized between a point somewhat higher and a point somewhat lower than the parity. For this purpose the central bank must be prepared to sell dollars at a fixed price in its own currency somewhat above par, and likewise to purchase dollars at a fixed price somewhat below par. The certainty that the fluctuations of the price of the dollar will always be confined within these limits is the safest remedy against such speculations as might hinder the process of stabilization. If the central bank binds itself unconditionally to buy dollars at a certain minimum price, the dollar cannot possibly fall below that price, and thus the bank cannot suffer any loss on those purchases. And as the bank pays with its own notes, it can continue this policy *ad libitum*. On the other hand, any tendency of the dollar to rise above the fixed maximum price should be prevented by selling dollars. In order to render such sales possible, the central bank ought to possess certain reserves. It is obviously advantageous if such reserves could be purchased at times when the dollar is low. Such a reserve must be created by a surplus in the balance of trade, visible and invisible items included, or, if necessary, by borrowing from foreign countries. As the reserve in question will not, generally speaking, actually be drawn upon, its real purpose being to offer security for the maintenance of the stabilization, foreign bank credits can in a large measure take the place of actual gold reserves.

As soon as the central bank has definitely announced that it is going to adopt such a policy, a very effective check will obviously be laid upon speculative operations, and the task of the central bank will become more easy than it seems to be now. If only the fundamental condition of stabilization of the internal value of the country's currency is fulfilled, other requirements will be of minor importance, and the necessary stability of the dollar exchange may soon be attained.

The actual establishment of the gold standard will then not offer any further difficulties. The central bank will be able to buy and sell gold at fixed prices in the neighbourhood of the exact parity, and that is the essence of the gold standard. In fact, no further steps would be required. Particularly must a warning be given against every policy which would tend to increase the demand for

gold in the world. To put gold coins into actual circulation would not be necessary, but clearly every attempt to do that would increase the demand for gold and tend to enhance its value. Likewise the accumulation of large gold funds is unnecessary and should be avoided, in order not to increase the demand for gold. The Genoa Conference gave much attention to this particular point, and recommended a system involving a certain centralization of the world's gold reserves, by which considerable economy in the use of gold for reserve purposes could be attained. The aim of a wise monetary policy must always be that in the long run no demands be made on the gold reserves. The function of the gold reserves then reduces itself to that of meeting the occasional demands that may still occur under such circumstances. But even such demands can mostly be met by the selling of foreign currencies. As long as the United States keep a very big gold reserve, the European countries can content themselves with much more moderate gold reserves than is generally assumed.

In England some hesitation has been shown just at the moment when the country has been approaching the possibility of restoring the gold standard. Some people wish to wait for the accumulation of a very big gold reserve, and some people are frightened by the huge burden which American debt would involve for the British balance of payments. Neither of these fears seems to me to be well founded. In my opinion the Bank of England has quite enough gold for all demands which could be put on this reserve if the British currency were kept up in full parity with the dollar, and if the rates of interest were forced up sufficiently to protect the British capital market against overwhelming demands from abroad. This last condition should also meet the fear of a deficit in the balance of payments. In spite of the American debt and in spite of all other obligations, Great Britain is, I understand, not only paying her way but has a very handsome surplus which is used for fresh investments abroad. For last year this surplus is estimated to have been about 200 million sterling. If any difficulty in the maintenance of the balance of payments should occur for a country with such resources, it could most naturally and most easily be met by a moderate reduction of the fresh foreign investments continually going on. Such a reduction could always be brought about by suitable action on the part of the central bank, and it should be possible in this way to meet any undue demand on its gold reserves.

It is of the greatest importance for the development of British trade and for the maintenance of London's position as a monetary centre, that the British gold standard should be restored at the earliest possible date. But at the same time this is a matter of great international interest. There is at present in Europe a whole series of countries which could establish a gold standard, in some cases at the old parity, in other cases at a new and lower parity. But there is a very widespread belief that such a step should not be taken

before England has first gone back to an effective gold standard, and London has again become a free market for gold.

Another consideration comes into question here. The establishment of a definite parity between the British currency and gold would very much contribute to the stabilization of the value of gold itself, and thereby make the gold standard, so to speak, a more desirable standard for the world. The latest monetary policy of the United States has without doubt tended to give the value of gold a considerably greater stability than it has had during a series of years. That is all the more reason why Great Britain should now step in and, by its collaboration with the United States, create that centre of stability which is so badly needed for a sound development of the world's monetary affairs. What we want in this domain of money is nothing else than what we want in all our economic and political business, viz., that centre of stability which can only be created by a true and rational co-operation between the two great English-speaking nations, a co-operation to which so many smaller countries of the world would heartily give their support.

The Measurement of Progress in Public Health

WITH SPECIAL REFERENCE TO THE LIFE AND WORK OF WILLIAM FARR[1]

By Sir Arthur Newsholme, K.C.B., M.D.

Although this lecture is given in connection with the inauguration of the Farr Memorial Medal, recently founded and endowed at the School of Economics by the generosity of Mr. W. J. H. Whittall, F.I.A., it has been considered advisable to make it the occasion for a more general though necessarily partial review of vital statistics as a measure of progress in Public Health. Such a review is so closely associated with the life and work of William Farr that the two subjects, so far as this country is concerned, may almost be regarded as one subject approached from two angles. I propose, therefore, to use Farr's work as furnishing the most fruitful example extant of the application of vital statistics to the promotion of social welfare.

It may be taken for granted that vital statistics fulfil an indispensable part in social and medical studies. They give a summarized record of facts ; they serve as an important instrument of enlightenment and of impetus to the control of remediable evils ; and they furnish a valuable means of investigation, especially in regard to the incidence and the causation of controllable diseases. But I do not assume that statistics can completely measure public health success or failure, though for most purposes they form the measure which is most easily and most generally applicable. Enumerations of population and of their condition in respect of housing and occupation, etc., and registration of the chief facts of life, especially of birth, marriage, sickness and mortality, form the chief sources of information on which have been built up, in large measure under Farr's guidance, our knowledge of " how the people of England live." Localized efforts in registration had preceded the inauguration of our national system in 1837 ; and it is interesting to note that the fear of plague and pestilence and the desire to measure the mischief produced by them were potent factors in securing registration of deaths. The London Bills of Mortality were circulated to reassure the inhabitants of London as to plague ;

[1] A lecture delivered at the London School of Economics and Political Science on October 4th, 1923.

and the invasions of cholera in the early part of the 19th century, along with the serious but unknown amount of "fever," were the strongest arguments for enacting the national registration of deaths.

The way to national registration of births and deaths was prepared by these earlier attempts at registration and perhaps even more by the inauguration in 1801 of Decennial Enumerations of the people. It would be difficult to exaggerate the social importance of this census, for from that date there has slowly evolved an increasing machinery for ascertaining how the people live and for removing and preventing social evils, by means of our national arrangements for inspection, and by our administrative methods of police, of sanitation, and of prevention of industrial injury. The first census of 1801 was in itself evidence that reform was in the air, and showed a conviction that for this end accurate mass information, i.e. statistics, were indispensable.

Influenced by the Wesleyan religious revival and by the correlative growth of humanitarian sentiment in the minds of men, first came prison reform, which was secured by John Howard (1726-1790), typhus being abolished from prisons while it still prevailed in the general community. And with him came first the introduction of an official inspectorate, a collateral source of accurate information, ranking next in importance to statistics of sickness and death, its results necessarily being given largely in statistical form.

In factory reform events followed a similar course. Owing its origin to humanitarian opinion, factory reform remained largely futile until 1833, and it may be said to have really begun by the appointment in that year of peripatetic paid government inspectors. The statistical information collected by them had high value ; but much was ascertained which could not be reported in this form, and both statistical and non-statistical data played their part in hastening reform. The highest value of the appointment of these inspectors consisted in the realization thus achieved that in the circumstances of large communities there is commonly a conflict of interest between the community and the individual, and that independent inspectors are needed to secure fair play between employer and employed, between landlord and tenant, between vendor and purchaser, and in numerous other relationships.

Poor Law reform and subsequently sanitary reform were secured under the vigorous hands of Edwin Chadwick and his co-workers as the result of surveys, to some extent statistical, but largely social and sanitary, made in selected areas ; and the enemies which were chiefly aimed at were cholera and "fever," the abolition of which and the corresponding reduction of pauperism were confidently anticipated as the result of suppression of nuisances.

But such surveys by a handful of inspectors and the vital statistics obtained in connection with them, although they demonstrated the need for community action, could not supply all the data required for reform ; and with the national system of registration

of births and deaths, and under Farr's skilful guidance, there was evolved a body of epidemiological information which laid bare the amount and conditions of prevalence of epidemic diseases, which gave ignominious publicity to the areas of excessive mortality, and which made it possible to obtain accurate information as to the social, industrial and domestic circumstances associated with disease.

The appointment of William Farr as "Compiler of Statistics" in the newly initiated General Register Office in 1837 was an event of historic importance. He was only 32 years old at this time. Of humble social origin and largely self-taught, he only obtained a single medical qualification, the L.S.A., in 1832 after his return from Paris, and perhaps we owe to this his escape from the position of surgeon to the Shrewsbury Infirmary, for which he was favourably considered. A timely bequest from an early benefactor enabled Farr to study for two years in Paris, and it appears to have been at this time that he first became imbued with his very exceptional appreciation of the importance of hygiene and of medical history and statistics as bearing thereon. On his return from Paris in 1833, he married and began medical practice in London; but his chief occupation was literary work, consisting of contributions to the *Lancet*, and the editorship of the *British Medical Almanac* and the *British Annals of Medicine, Pharmacy, Vital Statistics and General Science*.

There can be little doubt that the appearance of the words "Vital Statistics" in the last-named title was at Farr's suggestion; and both the above-named publications give valuable indications of Farr's already great skill in medical statistics and of his learning in the history of medicine. The volume of the *Almanac* for 1839 contains a full, though summarized, "History of the Medical Profession and its influence on Public Health in England." During the same period he contributed an article on "Vital Statistics" in McCulloch's *Account of the British Empire*, which was not extravagantly described by Mr. Noel A. Humphreys, for many years Farr's able colleague and assistant in the General Register Office, as "the foundation of a new science," the alphabet of which had been framed in the commentaries of Captain John Grant (1620-1674)

Thereafter for over forty years Farr devised the methods and supervised the actual compilation of our national mortality statistics, introduced methods of tabulation which have stood the test of time, and a classification of causes of death which has been the basis of all subsequent methods; and from these statistics, in reports year by year and in the classical Decennial Supplements written by him, deduced practical lessons as to the causation and prevention of disease, which have formed a most potent factor in determining the course of the sanitary history and the wonderful triumphs of public health in this country.

My first point, which appears to me to have important bearing

on the utilization of vital statistics, is that *Farr was primarily a hygienist.* His bent in this direction was possibly acquired under Professor Andral of Paris, who occupied in 1828 the Chair of Hygiene and in 1830 that of Medical Pathology in the University of Paris, and was at the same time one of the Editors of the *Annales d'Hygiène publique et de Méd. légale.*

On his return from Paris, Farr gave a course of lectures in London, two of which were published in the *Lancet* (Vol. I, 1835-6, pages 240 and 773). In the first of these lectures he deprecated the word " hygeine " (thus spelt) and expressed his preference for " hygiology," gave the first census in the world's history as that of the Israelites in the second year after they came out of Egypt ; and while deprecating " the revolting practice of Sparta of destruction of weakly infants," suggested that if infant mortality had been greater in England and " many of the weaker children had perished, is it not probable that the mortality in manhood would have proportionately declined ? " With our present knowledge we can confidently answer this question in the negative, and it was so answered by Farr himself in the 30th Annual Report of the Registrar-General in the following words :

> " The very conditions which diminish the numbers killed in the battle of life diminish the numbers of wounded ; and as every single death by violence implies the injury or mutilation of survivors, so nearly all the zymotic diseases leave irreparable traces in the blind, the deaf, the weak in body or brain. By removing the discovered causes of death you at the same time remove conditions which prevent the progress towards perfection of the human race."

In his second lecture he gave a valuable study of Hippocrates and of critical days in disease, and in answering the question, " Why study hygiene when by promoting the general health it would diminish the number of patients? " stated, " I know that our profession will not, for a moment, harbour sentiments so base " ; adding, " We exist as a body to promote the public health." It was with this sentiment as his pole-star that Farr was able during his official life to prepare the way for and to facilitate greater sanitary reforms than have occurred in any other period of human history.

In pursuing this end Farr's mathematical skill and logical mind enabled him to avoid most of the pitfalls into which amateur and desultory medical statisticians occasionally fall.

Statistics of disease as used by him were made to fulfil three essential conditions, viz., that :

1. The amount of the evil—injury to life and health—must be ascertained.
2. The evil must be localized, and its relative incidence displayed, according to age and sex, to locality, to social conditions, and in various occupations.

3. Public attention must be drawn to the facts as ascertained, and all possible ingenuity and even eloquence employed in securing this end.

A fourth and even higher object was manifested throughout Farr's writings, viz., that statistics were used to the extent of their possible utility in tracing the sources of disease and in throwing light on their causation. The statistical limitations of this object are suggested in a later paragraph.

Along with the hygienic bent of Farr's pursuit of vital statistics there is in all his reports evidence of *eager desire for social service*, and the axioms governing his inquiries to this end may be gathered by the following aphorisms from his first annual letter to the Registrar-General that " diseases are more easily prevented than cured," and that the first step in " their prevention is the discovery of their exciting causes." Farr's burning desire for social service was as marked as his statistical acumen ; and he can worthily be placed in the glorious company of Howard, who reformed our prisons, of the workers, including Southwood Smith, Lord Shaftesbury and others, who secured the mitigation of the evils of factory and mining life, and of Edwin Chadwick and John Simon, who were pioneers in Poor Law and sanitary reform. In the earlier reforms affecting prisons, factories and mines, it was not the economic motive—although this was a powerful instrument in Chadwick's hands—so much as pity and religious motive which secured reform ; and similarly in the most severely scientific discussions in Farr's reports the humanitarian motive and driving power constantly emerged.

Epidemiological Work.—The Registrar-General's statistics as to weekly, quarterly, and annual incidence of deaths from the chief infectious diseases during the 85 years of civil registration form an invaluable series of epidemiological data, while the corresponding figures for sickness since 1911, compiled in the Central Government Department for Health, give data of rapidly increasing epidemiological value. Farr early recognized that an epidemic is subject to definite laws, and that, for instance, a great epizootic like cattle-plague has its regular period of rise, of maximum, and of decline irrespective of human action concerning it. Farr's first note on this subject is in his Annual Report for 1840, and in a letter to the *Daily News* in 1866 he clearly enunciated this principle of spontaneous subsidence of epidemic diseases.[1]

This does not necessarily imply that against diseases pursuing when uncontrolled the normal epidemic curve the hygienist is helpless. When, as in the case of smallpox, specific immunity can be secured by vaccination, the epidemic law can be definitely overcome, and sanitary measures have a higher prospect of success than is possible apart from the production of artificial immunity ;

[1] See an interesting " Historical Note on Farr's Theory of the Epidemic," by Dr. J. Brownlee, *British Medical Journal*, August 14th, 1915.

and in other acute infectious diseases, except possibly measles and influenza, the epidemic peak of cases may be kept at a lower level, and even in these two diseases the fatality from attack may be reduced.

Epidemiological investigation enabled Farr on more than one occasion to assume the rôle of a prophet, *warning the public of impending dangers*, thus fulfilling one of the highest duties of a vital statistician. His report on the cholera epidemic of 1866 contains a striking instance of this. A Parliamentary Committee in somewhat halting language had said in that year : " On the recent outbreak of cholera in the East of London it was ascribed by the Registrar-General to the bad quality of the water supplied by the East London Waterworks Company to a part of the East of London." On this Farr remarks: " The Registrar-General had to speak in the midst of a tempest, and on his words at the moment the fate of the ship to some extent depended. . . ." The charge against the water supply, Farr agreed, was a serious one, but he adds: " It will be evident that the elements of a judgment existed in the accumulated experience of the previous epidemics, in the known laws of the disease, and in the facts of the case looked at comprehensively." Thus, although prompt alarm was given, it was based on careful induction from ascertained facts, and Farr happily had the courage to apply the special knowledge in his possession. At that time Farr combined in part the functions of statistician and of a public health adviser, and although these rôles sometimes are now separate, the need for accurate, complete and prompt statistical evidence concerning local incidences of disease remains.

Happily it has become possible to secure the intensive investigation of individual cases of disease, by means of which differential circumstances and crucial facts can be ascertained, and thus the indications furnished by mass statistics can be checked and made more exact.

Limitations of value of Massed Statistics.—Two earlier statistical studies of Farr may be used here to illustrate the fact that in massed vital statistics we are concerned with aggregates in which, if a causal inquiry is being held, it cannot be ensured that the causal factor is adequately isolated from other causal factors which may be acting at the same time. This difficulty, it may be remarked in passing, is a chief source of error when such complexes as Poverty, Crime, Divorce, Prostitution are regarded as simple phenomena the connection between which and some alleged cause can be ascertained statistically with ease. Thus infant mortality is directly related to poverty, but if this knowledge is to be socially useful, we must remember that extreme poverty and prosperity may both be associated with either high or low infant mortality—and that in any local investigation the complex " poverty " and the complex infant mortality both need to be further investigated before it can be decided what are the chief factors at work in a particular instance.

In an earlier investigation of cholera, Farr, during more than one epidemic of this disease, found a close inverse relation between elevation above the level of the River Thames and the amount of cholera in various parts of London; but although, probably influenced by Snow's important work, Farr gave statistics of the incidence of cholera in London according to water supply and concluded in 1853 that " it is believed that . . . the impurity of the water with which the inhabitants of the several districts are supplied is in nearly a direct proportion to the mortality from cholera," he still clung to the necessity of correcting these water statistics " for the effects of elevation." The story cannot be given in full here ; but it is clear that Farr at an early stage realized the need for field observations to check results obtained from mass statistics.

Farr's views as to the relation between elevation and cholera were associated with similar views as to the relation between density of population and general mortality. This latter relation consistently emerged for many years in the national experience of England, but more recently it has consistently failed to appear with standardized death-rates, although, as Dr. Brownlee has recently shown, the relation still holds good when life-table death-rates are used. This result is not convincing, for in standardized death-rates equal weights are attached to mortalities at age-groups, whereas in life-table death-rates varying weights are given to these. Furthermore, Farr himself did not always regard the relation between density and mortality as inevitable, as shown by his remark (*Second Annual Report*) that " there is reason to believe that the aggregation of mankind in towns is not inevitably disastrous." And again in the *Twenty-fifth Annual Report*: " mere proximity of the dwellings does not necessarily involve a high rate of mortality; the question is one of spread of infection."

The adhesion of Farr to the views that there was a causal relation inversely between elevation and prevalence of cholera, and directly in a certain proportion between density of population and mortality, exemplifies, as already suggested, the essential difficulty of mass statistics, that of unravelling and segregating from a number of coincident factors the factor which is under investigation, and emphasizes the importance, whenever practicable, of supplementing and checking inferences based on massed statistical data by intensive field observations and by experimental data if these are obtainable.

Importance of local comparisons.—Farr early in his official career realized one of the most important methods by which statistics could be made useful in promoting reform, viz., the comparison of district with district and of similar comparisons of vital statistics according to social position, occupation, overcrowding and so on. His Healthy Districts Life Table was a successful effort to codify the difference between healthy districts, in which the death-rate was below 17·5 per 1,000 inhabitants and was regarded as " natural," and unhealthy districts in which the excess mortality

over 17·5 was considered to be "unnatural." In 1845-50 there were only 63 districts with a crude death-rate not exceeding 17·5, but in 1881-90 more than nine times the population in 1841-50 had a death-rate below this figure, and in 1891-1900 it was found practicable to form a Healthy Districts Life Table based on the experience of nearly 4¾ million persons with an aggregate crude death-rate of 15·2 per 1,000 (standardized 14). The need, when measuring statistically the health of a community or the efficiency of public health and social work, for a progressive advance of the line of division between "natural" and "unnatural" deaths could not be more strikingly illustrated.

Statistics as formulating lines of investigation.—Reference has already been made to the value of Farr's statistical work in discovering enemies to health and in pointing the way to reform. Scarcely less important than this and not liable to the possibilities of error arising when inferences are drawn from massed facts, was *his statistical function as a setter of problems.* Thus in his report for 1851, drawing attention to the excessive mortality among butchers, greater than in any other class except innkeepers, he asks why? is it diet? or excessive drinking? or exposure to heat and cold? or the effluvia from decaying matter? here setting out some of the lines of an exhaustive inquiry into occupational mortality, in which, as in Dr. Snow's house-to-house inquiry in 1854 into the incidence of cholera in the areas of supply of two water companies, irrelevant items might step by step be eliminated. In the front rank among the important uses of vital statistics on a large scale stands their value as the necessary initial step to more detailed statistics in which is investigated the association or lack of association between successive "suspects" and the phenomenon under investigation, as for instance the cause of the excessive rate of mortality of innkeepers or butchers.

Already reference has been made to two illustrations in Farr's work of apparent causal relationships which did not penetrate into the inner arcana of truth. In his partial endorsement of some of Florence Nightingale's statistics as to excessive mortality caused by hospitalization, there may have been similarly some non-recognition of the disturbing factors implicated in the statistical comparisons that were made. But in view of the defective statistics with which he necessarily worked and of the complexity of the factors involved in many of the statistical problems which he examined, the sparsity of blunders is most surprising. He had learnt the statistical lesson which has been well expressed in Moxon's words: "Overscrutinizing insufficient evidence does not make it more complete." That refinement of mathematical methods will not compensate for the inadequacy or heterogeneous nature of the data collated is a lesson which we still need to bear in mind.

In the preceding paragraphs only a few points in Farr's path of brilliant usefulness have been illustrated, especially as bearing on

his influence in promoting sanitary science. But while emphasizing Farr's zeal for hygienic reform and his constant use of vital statistics as a means to this end, it is necessary also to pay a tribute to his mathematical genius, and to the wide range of his important statistical investigations recorded in successive volumes of the *Statistical Society's Journal* for many years and in publications of the Royal Society and elsewhere. This wide range of subject matter entirely justifies the proposal that a medal to commemorate such wide interests should not be associated with any purely sectional work in statistics. Thus he turned naturally to the construction of scientific Life Tables, which led him on to voluminous writings on the subject of annuities and life insurance, and gained him public repute as an actuary. He had the unique distinction in the medical profession, and shared this distinction alone with a great mathematician like Sylvester, of being elected to the honorary fellowship of the exclusive Institute of Actuaries.

With all this Farr was primarily a hygienist, and his numerous reports showed not only scientific capacity but also continuous effort to expose the weak points in our social armour and to provide additional means of attack and defence against disease. His life and work are constant reminders of the high value attaching to vital statistics in the promotion of preventive medicine.

And through all his efforts there ran, it may be added in concluding our personal references to Farr, a glorious optimism which must have been a continuous spur to further statistical inquiries. Thus the fears of Malthusians were never for him a real danger, for, as he said (*Supplement to 35th Annual Report*): "The great source of the misery of mankind is not in their numbers, but their imperfections and the want of control over the conditions in which they live." And similarly the prevalence of epidemic or zymotic diseases did not for him represent inexorable natural laws, for "the exact determination of evils is the first step towards their remedy," and among the means for limiting the operation of these diseases he rightly attached high importance to the view that "the mere accumulation of masses of living people within narrow limits (either generates or) insures the diffusion of epidemic disease." (*Thirtieth Annual Report*).[1]

[1] A complete account of Farr's life has never been published, though Mr. Noel Humphreys' sketch prefixed to his collection of extracts from Farr's writings published as a memorial volume by the Royal Sanitary Institute, gives much valuable information. In this connection I am permitted to quote from an unpublished letter written by Miss Florence Nightingale, in June, 1883, which, with other information bearing on Farr's life and work, has been deposited by Mr. Whittall in the library of the School of Economics:

> "I trust that Dr. Farr's life will be written at once. It is not like a political life which involves the reputation of living persons. . . . You will understand better than I did myself, what a great debt we owe him who, with M. Quetelet, we may say originated the practical application (at least organized it) of a science without which all other sciences—moral, social,

Did space permit there would appropriately follow at this point a sketch of the increasing scope and success in the statistical measurement of health efforts since Farr's retirement in February, 1880, at the age of 71, three years prior to his death.

The foundations laid and the edifice built by Farr on scientific and rational lines have been extended by his successors, Doctors W. Ogle, F. F. W. Tatham and T. H. C. Stevenson and their colleagues, and to a pre-eminent extent during the tenure of office of the last named.

More accurate death-rates according to age and sex, and standardized for all ages, have been made available. Farr's Life Tables have been followed by others, including the highly important series constructed by Mr. George King, F.I.A. (*Supplement to the Seventy-fifth Annual Report of the Registrar-General*, Cd. 7512), which have enabled the decennial progress in health to be calculated as well as its distribution in the two sexes and in different groups of population, and which have elicited the cheering fact that at all ages right up to extreme old age the prospects of increased life have improved.

Even more important has been the increased use of comparisons between duly corrected death-rates from all causes and from special diseases in different areas and for various social positions and occupations, thus throwing a search-light on centres of excessive mortality at one or other period of life or from one or other cause. No branch of statistical work has been more fertile in result, in the hands of public health workers, than this. The exact position of excessive mortality is thus exposed, and public health investigation and reform can be concentrated where most needed. This intensive study of vital statistics has proved especially valuable in child welfare work, the wards of towns, and even the streets in which child life is sacrificed have been revealed, and with this also the special diseases and the conditions giving rise to them have been laid bare. For instance, medical officers of health and even the general public are brought to realize the damnably soporific error underlying average death-rates for the whole country or for an entire town, and are pressing for information as to the areas of maximum mortality, and inquiring how the maximum may be lowered to the level of the minimum mortality already experienced. An important example is furnished by the enormous variations in different parts of England in the death-rate of infants in the first month after birth, indicating the vast scope for future application of preventive medicine to maternity and infancy.

The possibility of obtaining statistics free from error, and thereby the utility of these statistics, has been greatly increased by the reform arranged between the General Register Office and the Local

political or administrative—could not exist as sciences at all. I mean, organized the verifying and registering by statistics the results of social habits, politico-administration systems, etc., with a view of determining what our course shall be in future."

Government Board in 1910. Administrative sanitary areas were substituted for poor-law (registration) areas as statistical units, machinery was organized for the relegation of deaths of all non-residents to their own area, and each local medical officer of health was supplied with the summarized statistics of his own area. Thus the possibility of accurately comparing the experience of one area with that of another has been greatly extended ; and such comparisons, although sometimes unpleasant, are most instructive and morally coercive. If I do not further refer to the increasing body of statistics of infectious sickness now available, it is not from lack of appreciation of its potential value.

In these and in other directions Farr's work has been extended in the work of his successors, and in the writings of an increasing number of medical officers of health and other hygienists ; and appreciation of the value of vital statistics as an instrument of research, as an important indication of directions in which research is needed, as a guide to sanitary effort, and as a means of public enlightenment, has become widespread, and happily much of this appreciation is imbued not only with the scientific spirit, but also with the burning zeal for human welfare which was a striking feature of Farr's writings.

Were I to stop at this point, I should not have failed to show, in the light of Farr's work, the importance of numerical method of research in hygiene and in sociology generally. Were further evidence of the value of statistical methods of research required, the work of Charles Booth, of Seebohm Rowntree, and more recently the highly instructive work of Professor Bowley and Burnett-Hurst (*Livelihood and Poverty*, 1915) furnish well-known instances of the value of this method as a means of investigation and a guide to social amelioration.

But some general observations as to the extent to which statistics are valuable and the inevitable limitations of this utility appears to be desirable at this point. The function of statistics is to sum up many individual experiences in a single statement, which will show concisely the tendency represented by the whole. Evidently quantitative statements dealing with numerous facts cannot be made without statistics. Homogeneity of data, implying accurate definition of each unit to be counted, is required, and it is because of neglect by the investigator in this respect or difficulty in definition, that so many statistical investigations are fallacious and their results are as shifting sand. Among the causes of error the personal equation of the observer himself is especially prominent. Happily in mortality statistics, where there is accurate registration, no serious error is likely to arise, except when comparisons are attempted between indefinite or grouped causes of death in various localities.

The chief immediate value of vital statistics for public health work *lies in the facts themselves*, pointing out premature death

and sickness and unnecessary causes of death and their localization, and the circumstances in which they have occurred. Comparison between different experiences shows to some extent the degree of preventability of mortality ; and medical and hygienic knowledge, non-statistical in origin, gives exactitude to public health action.

When causal investigation by the method of statistics is made, or when again attempt is made to measure statistically the effectiveness of a given line of administrative action, the inherent weaknesses of the statistical method emerge. Conditions cannot be controlled as in a physical or chemical experiment, and the factors involved nearly always are multiple. We may draw inferences of a general character from a series of related facts of adequate magnitude, but a complex thus investigated remains a complex, and the inference drawn is subject to the possibility that one member of a complex bundle has been given undue prominence over the remaining members of the bundle.

As Yule has put it, the statistician is concerned always with quantitative data affected by a multiplication of causes. In most statistical problems in medical and social research there is an implied " if," as for instance in the Malthusian proposition, from which it can be merely inferred correctly that *if* population tends to increase faster than food supply, poverty is an inevitable natural phenomenon ; but we know that poverty may be a phenomenon of either sparse or dense population, that in some circumstances excessive mouths may be responsible for it, but that oftener it is the result of disabling sickness, of mental or moral inefficiency, of alcoholism, of gambling, or of ill-paid or inadequate work associated with bad distribution of workers and work.

These difficulties give us pause in accepting some of the inferences from social data advanced by the biometrical school of statistics. Whether we measure causal relations by parallelism of curves or by factors of correlation, we are unable in most instances to escape the possibilities of error arising from the personal element involved in the selection of factors to be compared, nor can we avoid the necessity of judging on a wider basis whether the " significance " of the co-efficient of correlation is causal or merely accidental.

There is force in the statement by Professor J. Cummings, (*Quarterly Publication of the American Statistical Association, June*, 1920) that " however interesting the mathematical manipulation of data may be in itself as mathematics, data in the raw mass as they come to the statistician are not generally susceptible of any considerable amount of mathematical refinement. Over-refinement of data is professionally recognized as a statistical vice, since it implies accuracy and simplicity in data to a degree which is unwarranted."

We may, while attaching due value to Mr. J. M. Keynes' destructive criticism of them, regard the Galton-Pearson methods as

a great advance in statistical science. Every step from a qualitative to a quantitative expression of facts, if accurate, is of high value ; but in accepting conclusions based on quantitative data, and especially when the methods of statement are in some respects debatable, we are not only justified in hesitating to accept dogmatic conclusions, but bound also to inquire if the data are homogeneous and adequate to bear the weight of the conclusion based on them ; and this is especially true when we remember that factors are multiple and that factors other than those biometrically examined may bear an important part in the result. We may indeed be compelled sometimes to remain satisfied with a qualitative interim judgment ; though this, in such cases, is as liable to error as an attempted quantitative statement. Inadequate evidence, as already remarked, can never be made more complete by over-scrutinizing it.

The difficulties of quantitative statement in complex social problems may be illustrated by the bare enumeration of a few instances in which error appears to have originated in the preliminary selection of the material, owing to the failure to eliminate the mentality of the investigator or owing to the unsatisfactory character of the material.

Thus investigations published from the Eugenics Laboratory indicate that inheritance has a higher influence in affecting intelligence than certain selected environmental factors, a conclusion which few will dispute ; but the very low correlation coefficients which have been ascertained between the intelligence of children and such factors as the moral and physical conditions of parents, crowding of dwellings, and economic conditions, cannot be regarded as showing that these factors have not high value. We may rather agree with the conclusion reached by Dr. J. Esserlis and Mrs. Francis Wood in an investigation pursued by biometrical methods,[1] that " progressive improvement in home conditions may be expected to react favourably not only on the health, but also on the intelligence of children," while remaining unable to accept completely any quantitative results which have hitherto been obtained on the point.

So also the apparent statistical proof from Edinburgh figures that we may console ourselves with the reflection " that to the obvious and visible miseries of the children arising from drink, lowered intelligence and physique are not added " (*Questions of the Day*, etc., No. III) is so contrary to mankind's experience of the family results of protracted parental alcoholic indulgence as to compel us to decline to accept the data or the mathematics which appear to point to this conclusion.

In a recent report from the same laboratory, inferences drawn by various observers as to the influence of artificial feeding, of cleanliness and of economic conditions on the health of infants are subjected to severe criticism, and these observers, presumably medical

[1] *Study of the Data provided by a Baby Clinic in a Large Town*, 1922.

officers of health, are accused of invariably " taking refuge in conviction deduced apparently by some instinctive process from observational experiences " ; and it is added that these illogical persons do not recognize that the correctness of their view " must invalidate a far wider experience than their own, viz., that of some twenty or thirty of their colleagues who had each come to a different judgment as to the primary factor of infant welfare." The error in this statement lies in the word " primary." Not one of these observers would be likely to affirm that the factor investigated by him was " primary," and still less that it was in solitary action. All of them would probably agree that " it is the healths and habits of the two parents far more than the environmental conditions upon which the welfare of the infant depends " ; but they would doubt the validity of the antithesis in the quotation and would repudiate the implication that environment counts for little ; and they would not fail to point out that the health and habits of parents form a chief part of the child's environment as well as of its inheritance.

The methods of correlation, whether in their original form or as developed by the biometrical school in recent years, are obviously open to criticism, and those who use them are themselves discovering the need for modification of methods and their necessary limitations. They are pioneer movements opening out new vistas, but undue haste in taking possession of the promised land implies disappointment and more prolonged wandering in the wilderness.

But these methods and deductions from results obtained by their application do not stand alone in giving examples of pitfalls for the unwary or the rash, and I may illustrate this by two examples arising out of the experience of the Great War.

In 1920 an official report (Cd. 504) was issued, giving the results of the physical examination for military service of nearly 2½ million men in the eleven months between November 1st, 1917, and October 1st, 1918. Of these men, over 10 per cent. were found to be permanently unfit for any form of military service. From the results of this survey, unduly pessimistic inferences have been drawn as to the average standard of health and efficiency of the manhood of this country. The figures themselves are serious. There is much disease and there are many physical defects in the adult population, in the prevention of which in the next generation public health administration could take a much greater and more successful part than it has hitherto been permitted to do ; but before accepting implicitly the percentages in each of the four grades into which the men were divided, we must be further assured that the physiological standards adopted were appropriate, and that massed statistics can be trusted which are based on examinations by many medical boards under varying circumstances of leisure or hurry, of adequacy or inadequacy. We must, furthermore, remember that the examinations were of men who were left after the fittest men of the nation had already enlisted.

The published figures as to the mental condition of military recruits in the United States are even less satisfactory. Men evidently feeble-minded were not drafted, and the one and seven-tenths million men who were drafted were examined by " intelligence tests," intended to measure intellectual competence rather than acquired information. Recruits were then classified according to their " mental age," with the result set out more fully in the new edition of *Elements of Vital Statistics*, by A. Newsholme, but which may be summed up as indicating in the words of Professor Conklin[1] that " assuming the drafted men are a fair sample of the entire population of approximately 100 millions, nearly one-half of the whole population will never develop mental capacity beyond the stage represented by a normal twelve-year-old child." The results obtained have been widely quoted as most sinister in significance for the future of democracy ; but consideration must give pause in accepting the data at their face value. One would like to know whether the tests were not originally planned to exclude a large proportion of the drafted men ; further information is needed as to whether the tests of " mental capacity " were more than an extremely partial indication of the competence of each man in respect of judgment or wisdom, which does not necessarily run parallel to " mental capacity," and as to the definition of " normal," which is probably much above the average. Furthermore, how is one to distinguish in such tests between initial mental deficiency and undeveloped mental potentialities ? These and like considerations may well justify doubt and even scepticism as to the significance of the tests employed in this gigantic series.

Similar doubt attaches to statistics showing in this country that crime is only to a trifling extent a product of adverse environment, and that the criminal is to a large extent a physical and mental " defective." In the important investigation by Dr. Goring, in which this conclusion is reached, criminality is treated as a unit. It cannot, from an etiological standpoint, be so regarded, any more than poverty or any other social or anti-social phenomenon. We may doubt, furthermore, on the one hand, whether the high correlation indicating the degree of restriction of crime to certain stocks may not be moral contagion in unknown proportion with true inheritance, and on the other hand, whether low coefficients of correlation between individual items of environment and crime do more than point to the fact that the human organism is subjected from earliest life to innumerable environmental influences, of the aggregate effect of which no adequate measure can be given by coefficients of correlation.

What is needed in the preceding instances is a statement of coefficients of correlation between selected measures of environment and the factor under investigation (intelligence, physique, criminality) in truly random samples of population, for comparison with the

[1] *The Direction of Human Evolution.* By Professor E. G. Conklin. 1921.

coefficients in the special groups; and it is this fundamentally important check-test which in most instances is lacking. To take a further illustration; it is generally stated that "one-third of all prostitutes are feeble-minded," with the apparent implication that the prevention of prostitution consists to the extent indicated in the control of the feeble-minded. Before this conclusion is accepted, or at least, before it is regarded as indicating a practical policy, we must ascertain by examination of successive random samples in the social groups from which the prostitutes were derived, whether the percentage of mental defect in prostitutes is in reality greater than in these random samples. It is probable that the differences are much less than is supposed, and that as Dr. F. L. Dunham has expressed it, "the mere fact that our ingenuous snares catch dullards is no sign that all offenders are stupid enough to be caught."

There remains a further problem which must at least be mentioned. Is it possible in every instance to measure by means of statistics, influences and procedures benefiting the public health or improving social welfare? The question may be illustrated by an extreme example. How is the degree of value for health of playgrounds to be measured? Such playgrounds are provided and maintained in the State of Massachusetts out of public taxes; but it would surpass human ingenuity to assess the degree of the undoubted value of these playgrounds in view of the numerous collateral influences, for and against the physical and moral health of the children concerned, which must enter into an analysis of the problem. One might almost as well attempt to measure the piety of Bishop Keble in terms of that of the apostle Paul, or to give an arithmetical expression to the relative influence of Alexander and Cæsar and Napoleon on the history of the world.

Similar though less extreme instances arise in public health administration in assessing the value of special forms of action taken against disease. Much of this difficulty arises from the deficiency of our knowledge of the biology of each morbid process. Thus if, as is likely, it be hereafter shown conclusively that active tuberculosis in the adult is in the majority of cases the result of infection prior to adult life and particularly in childhood, the deficiency of evidence of tuberculous infection between married couples loses most of its relevance. In measuring the effects of overcrowding, of indoor occupations, of dirty habits, etc., in promoting tuberculosis; of better factory and domestic hygiene, of higher nutrition, of segregation of the sick in diminishing it; and of inheritance in diminishing or promoting it, the impracticability of exact measurement both on the biological and on the environmental side is similarly evident, and it is only by careful historical and contemporaneous study of the incidence of disease, by means of our increasing knowledge of its pathology, and by comparison with experience in cattle, often under experimental conditions, that indications of the combined methods of attack against the disease which are called for can be secured,

or an adjudication of the relative value of the factors favouring infection or victimization by infection can be attempted.

Similarly in measuring the value of the medical and hygienic work of health centres and of health visitors in reducing infant mortality, we are faced with the fact that similar reductions have occurred in communities in which these agencies are not at work, and there are reasonable differences of opinion as to the relative value of the agencies, natural and administrative, which may be regarded as taking part in producing this result. It is sometimes possible by careful selection of groups of families for comparison, which apparently resemble each other except in the particular item investigated, to show the influence of sanitation or of instruction or size of family or industrial occupation of the mother, or some other factor on infant mortality, and such investigations carefully organized and carried out have great value. But even where such investigations are lacking, no accumulation of gross statistics—which appear to point to the conclusion that ignorance is not more detrimental than knowledge, and that domestic cleanliness is not conducive to health of infants—can be received without implicit belief in their inaccuracy or fallaciousness. These factors have great influence on health even though in mass statistics other important factors may disguise their effect.

Although in preceding paragraphs it has been necessary to point out the necessary limitations of the applicability of certain classes of statistics in testing sanitary progress and public health work, the increasing application of statistics to public health work is inevitable, and all the help which experts in this subject can give in testing hasty conclusions, in exposing fallacious methods, and in pointing out directions in which public health administrators may assist statistical inquiries and be assisted by them, will be welcomed by all who, like William Farr, are engaged in the fascinating life-work of public health and are desirous of shedding every possible light on avenues of progress.

A Word for the Devil

By D. H. Robertson.

§ 1. The devil of Malthus has been by common consent unchained, and it is by the shores of the Cam where he was cradled that he is generally believed to do his most preposterous roamings. I have been asked to explain why those who serve the economic shrine at Cambridge keep so unprepossessing a figure in so prominent a place in their temple precincts. But I would rather not claim to speak on behalf of any college of priests. *Nullius addictus iurare in verba magistri*, let me try to state shortly why, in even the briefest survey, whether of economic theory or of the economic problems of the contemporary world, I should feel compelled to set in a strong light those rather lowering and unwelcome considerations which are conveniently summoned to the mind by the name of Malthus.

I must be allowed, first, to make two provisional assumptions. The first is that our object is to promote the economic welfare of the community to which we belong. The second is, that (neglecting questions of distribution) the test of our success is the attainment of the greatest possible *average* economic welfare per member of the community. Neither of these assumptions is by any means self-evident, and I shall have more to say about both of them later. But we must start somewhere.

It will be convenient to approach negatively the problem thus conceived, and to deal first with certain tasks which I should *not* call upon the Malthusian devil to perform.

§ 2. To begin with, I should not expect him to afford much aid in solving the problem of unemployment. On this point I agree, on the whole, with Sir William Beveridge's remarks in his address to the British Association, to which I shall often make general reference in what follows. Severe unemployment can exist without urgent pressure of population, and urgent pressure of population without severe unemployment. There inhere in the structure of modern society so many potential defects of organization, of adjustment, of calculation (and no one has done more than Sir William Beveridge to elucidate them), that if the devil were chained for good and all, men would still walk the streets in search of work.

But I should not go so far as to say that the pressure of population *might not* manifest itself in the form of unemployment. Where (as in India or China) the structure of society is simple and the standard of life capable of almost infinite degradation without destruction of the social order, such a result is not to be expected. But I am not

sure that the same is true of our own society. It may be true that the power of Trade Unionism is temporarily crippled, and that post-war visions of an indefinite improvement in the standard of life have been shattered. But it may also be true that there is, in the European worker, a very deeply implanted sense of what is and what is not good enough—a point beyond which the collective sense of what is a "fair day's wage" will not suffer the individual worker's reward to be quietly depressed, but will ordain rather that so many thousands shall stand aside with folded arms—a naked and patent surplus and incubus upon the State. I am not asserting confidently that this point has been reached in Britain, but I think we must wait till the next trade boom (if in the present state of Europe it is not over-rash to use such a phrase) to be certain that it has not. If, when that time comes, we can absorb into industry nearly the whole of our present surplus of unemployed, well and good; but if not, shall we be wrong in detecting the hand of the devil?

Nor do I think that the experience of Germany is conclusive evidence of the non-connection of over-population with unemployment. Currency inflation, as everybody knows, is a convenient method of effecting a prolonged and fairly surreptitious degradation of the standard of life; but the end is a crash. As Sir William Beveridge points out, giving the most pertinent illustration of Vienna, the *optimum* of population is a function of environment; a locality which has not been over-populated may become so through the destruction of its economic "conjuncture." And when this occurs, the pressure of population is likely to manifest itself not merely in a degradation of standards but in the emergence of an absolute surplus for whom it is literally impossible to find useful work. Thus the demand for Government officials in Vienna reached saturation point; there was *no* wage at which it was worth while to employ more than a few of them. Is it not possible that a similar result, long postponed by currency inflation, is now at hand in Germany? (I assume that a mutual slitting of throats is not, economically speaking, employment.)

I conclude therefore that while the student of unemployment must continue (under Sir William Beveridge's guidance) to give his main attention to matters of organization, it will do him no harm to keep half an eye on the devil.

§ 3. My second negative proposition is evoked by the popular use, in connection with devil-worship, of such words as "scare," "alarmist," "panic-mongering." Respect for the devil does not lead me to assert that one fine day the inhabitants of this country will wake up to find themselves starving for bread, or even (which would be a less extravagant proposition) with no cotton for their shirts and no petrol for their motor-cars. It is not a question of catastrophic dearths, but of lowered standards, truncated leisure, foregone pleasures, baffled visions. This point has been so well developed in a recent emanation from the seat of devil-worship, Mr.

Harold Wright's *Population*, that I need not harp upon it. I conceive of the devil, not as lying in wait behind some distant corner for a single strangulating leap, but as tweaking us continually by the ear and putting pebbles in our shoes.

But I must go further. A mere proof that in such and such a period and place average welfare was not lowered but continued to improve does not prove that the devil was not at work. To disprove the activity of the devil it is necessary to show not merely that average welfare is rising, but that it is rising faster than it would have done if population had been growing more slowly ; or, rather, since such hypothetical propositions cannot be *proved*, it is necessary to show reasonable grounds for considering this likely. I intervene in the statistical controversy between Sir William Beveridge and Mr. Keynes chiefly to say that its issue does not seem to me greatly to affect the general question. Whether our standards were rising slightly or falling slightly between 1900 and 1910, there can be no doubt that they were miserably lower than we should have wished, and equally little doubt, surely, that they would have been higher if there had been fewer of us. To deny that in such circumstances we were suffering from the pressure of population seems to me to trifle with words.

I do not, therefore, in the name of the devil, prophesy sudden cataclysm or even *necessarily* continued degradation ; nevertheless, in the pie of the world's poverty I detect his smoky finger.

§ 4. It is thus as a wet blanket—a spoil-sport, that I oftenest think of him. To pass to the more positive side of my case, there are three points in my lightning lecture on the state of the world at which I should pause to point anew at the well-known horns and hoofs. The first is in connection with the whole range of topics which we may group loosely for our purposes under the heading of Social Reform. How many are the alluring prospects of social improvement which we dare not consider on their intrinsic merits through fear of the menacing proletariat of the unborn! Why should the State, conceding the Right to Live, deny the Right to Work ? Why, in assuming responsibility for the welfare of the child, should it creep with such slow steps from the brains to the teeth and from the teeth to the belly ? Why should not Miss Eleanor Rathbone's demonstration that it is wasteful to make the industry of motherhood parasitic upon that of coal-mining or cotton manufacture win easy and triumphant assent ? Whatever the exact phrasing of our answers, is it not clear that the devil is at the bottom of all this ? The *Essay on Population* was a torpedo launched at the Utopias of Godwin and Condorcet—not, we may presume, out of mere misanthropy. The constructions of gentlemen " with a happy disposition and a wild desire to please," seem occasionally to call to-day for similar medicine. If the priests of devil-worship appear sometimes to take an unduly grim pleasure in administering it, it need not be assumed that they are hard of heart, or that they would not be as

glad as anyone to find an Exodus from their preoccupation with Genesis and Numbers, and to get on with the journey to the Promised Land.

§ 5. The second whiff of brimstone would come with the discussion, not to be avoided, of the relative position of those who make their living by the tricks of manufacture and those who draw it direct from the soil. Like other devil-worshippers, and some who are not (among whom I think, on the evidence of his latest book, I may reckon Dr. Marshall), I detect the operation of a secular tendency to a relative worsening of the position of the former. My impression is that Sir William Beveridge's statistical admissions of the retarded rate of progress in England in 1900-10 give me all I need on that point; but I write away from figures, and do not intend to discuss them. But can anyone doubt the strength of the underlying tendency? Can anyone miss the significance of the growing absorption by the United States of its own foodstuffs and raw materials? Is not the present quandary of Lancashire not only grave in itself, but symptomatic? How can the exploitation of a not incommunicable dexterity fail in the end to be a more precarious mode of livelihood for a nation than direct contact with the roots of wealth? There is a passage of Malthus too often forgotten by those who assert him to have been put permanently on the shelf by the portentous widening of horizons which occurred in the nineteenth century: "It is generally an accidental and temporary, not a natural and permanent division of labour, that constitutes one state the manufacturer and the carrier of others. . . . Advantages which depend exclusively upon capital and skill, and the present possession of particular channels of commerce, cannot in their nature be permanent. According to the just reasoning of Adam Smith and the Economists, the food-producing countries of the world, finding at home both the materials of manufacture, the means of subsistence, and the power of carrying on their own trade with foreign countries, will probably be able to conduct the business of manufacturing and carrying for themselves at a cheaper rate than if they allowed it to continue in the hands of others." Except, he might have added, in so far as the others are prepared to submit to be sweated: for once again it is not so much a cataclysmic change as a prolonged and gradual degradation of standards that is to be feared.

And this leads me direct to the third whisk of the devil's tail—fraught with menace to the apple-cart of international peace. Demonstrations of the essential silliness of the policy of Economic Imperialism, such as filled Mr. Norman Angell's earlier works, or such as happen to be fresh in my mind from a recent study of that most readable and scholarly blend of irony and idealism, Mr. Leonard Woolf's *Empire and Commerce in Africa*, have always left me unconvinced. Easy to prove that in this or that case the game was not worth the candle, that here or there the nexus between political control and economic advantage proved less than had been hoped.

But how deny in the gross that there is a real competition between the teeming industrial populations for limited markets and limited sources of supply, or that exclusive possession, *if* it could be attained without continuous menace to international peace, would be a real material advantage? I do not draw the inference that unfettered Economic Imperialism is the right policy: the moral consequences are too degrading, the certainty of ultimate conflagration too great. I agree that International Co-operation is the only way out. But it is idle to pretend that that way is easy, or that it is not harder than it would be if there were fewer mouths hungry for food and fewer arms hungry for work. I find that I wrote eleven years ago: "There can be no permanent limitation of armaments till there is an international agreement for the limitation of the birth-rate," and though I hope Washington has proved me wrong, I am not much ashamed of the implications of that piece of youthful pessimism.

§ 6. Now let me make some concessions to those who despise the devil. First, I agree that we devil-worshippers are a thought late in the field; that the *quantitative* problem of population (I do not attempt here to touch the still thornier *qualitative* problem) is more firmly set on the road to solution than you would sometimes suppose to hear us talk. It would have been more impressive if we had spoken out, from the World of the Unborn, before the decisive turning-point of the birth-rate in the 'seventies. (Perhaps we did our best; perhaps it was we who whispered into the ear of Mill those too long neglected passages in his *Principles*.) There is a time-lag between the cradle and the Employment Exchange; and the world suffers now, if it suffers at all, from the habits of a generation ago. All this is true, but is not the present position bad enough? Mr. Keynes calculates that in this country in the next twenty years the male population of working age will increase by 25 to 30 per cent. Is not that enough to justify him in smelling brimstone?

Secondly, I concede that the problem is more urgent locally than œcumenically, and can therefore be palliated in a certain measure by redistribution, and that we of the British Commonwealth are fortunately placed in this respect. But here, again, we must be cautious. How many countries are really under-populated in the sense that average welfare would be increased *in consequence of* a growth in population? Australia probably; can we be so certain even about Canada? Average welfare will doubtless increase there whether population increases or not; but that is a different matter. The hawker of surplus populations is content to say, "There is room with you"; the potential buyer—a Dominion Premier, for example—is entitled to ask, "What does 'room' mean? Will the average welfare of my native-born constituents be greater if I take your wares or if I don't?"

Thirdly, I have some sympathy with those who fear lest devil-worship be used as a cloak for reaction—for factious or selfish opposition to sensible reform—an excuse for folding the hands.

There is much that we can and should do, though the spectre haunts us. But there is more that we could do confidently if the spectre were laid to rest. Let us organize by all means, nationally and internationally ; but let us also take thought lest the fruits of our organization be dissipated in fecundity. Those who, in fear for their pet social schemes, decline to lend a hand in exorcising the devil, are their own worst enemies ; for they are leaving in their path a rock behind which every vested interest, every instinct of selfishness and cynicism, will be led to seek for plausible shelter.

§ 7. It is time now for me to return to my two preliminary assumptions. If anyone chooses to tell me that the maximization not of *average* economic welfare but of *total* economic welfare should be our aim, I cannot prove him wrong. If even the most starved and stunted life must be held to contain a substantial balance of material well-being, then it may be desirable that population should grow indefinitely even at the cost of an indefinite degradation of standards. I can only reply that I personally do not thus conceive of economic progress, and that I take leave to doubt whether, when forced into a logical corner, anyone else does.

But the whole matter becomes more obscure when we take non-economic considerations into account. There are, first, the questions of national power and military advantage. Even here I think there is a stronger case for devil-worship than is always conceded. In the kind of Next War to which we are most often invited to look forward, a relatively small A1 population might be a better military asset than a vast city-dwelling C3 population, a pullulating mass of fodder for bombs and panic. But it may be our duty to ensure that the world contains as many Union-Jack-flying people, or English-speaking people, or white-skinned people, as possible, compared with other sorts, even though most of those grains of the salt of the earth be very poor and rather miserable. I cannot prove that it is not.

Again, may not a human life exhibit a positive balance of *value*, even if it exhibits a negative balance of material well-being ? As the youngest of six children, I should myself have had a certain grudge against a straitly devil-worshipping world. If we accept what I take (perhaps wrongly) to be the modern orthodox Anglican position—that the soul does not pre-exist bodily birth but does survive bodily death, and is not in appreciable danger of perpetual damnation—then clearly to refuse to create the maximum number of perfectible souls is to incur a grave responsibility.

I cannot solve these problems. I can only try to make up my mind what kind of a world I, if I were God, should most enjoy contemplating. And that would be a world in which devil-worship was more widely practised than it is at present. And there I must leave it.

The Limits of Agricultural Expansion

By R. B. Forrester.

Recent discussion upon the relevance of Malthusian arguments to the present ecomonic outlook has drawn attention to that side of the issue which is concerned with the possible rate of increase of food supplies and with the factors controlling the limits of agricultural expansion.

The subject has commonly been overshadowed by the dominant interest in the question of numbers, what may be called the "population" side of the problem. The survey of agricultural conditions, which is a necessary part of any useful contribution to the points of difficulty, is usually approached by a more or less general statement of the "Law of Diminishing Returns," which is considered "an accurate account of the growth of the food supply,"[1] and suggestions are then made that this tendency is in operation with regard to supplies of food, raw materials, and minerals. It is no unfair comment upon Mr. Harold Wright's study of population to say that in Chapters II and IV he conforms to this method. Alternatively, a special study may be made of one crop, usually wheat or cotton, emphasis being laid upon the difficulties of increasing output in certain areas, or of one part of the world, weight being placed upon its decreased power of exportation and upon its former importance in production. Sir William Crookes' essay upon *The Wheat Problem* is an illustration of concentration upon one product and Mr. J. M. Keynes' statements in Chapter II of the *Economic Consequences of the Peace*, with reference to the real cost of food, relate to the New World, chiefly to the United States.

Neither of these methods can be accepted as valid, since it may be openly denied that farming is subject to diminishing returns in any other sense than manufacturing industries are subject to the same tendency. It is a question of proof. Further, an examination of one crop or the produce of one area is scarcely a suitable measure of the world's agricultural resources. A crop may be grown under special conditions or may be passing through a period of particular stress, and exceptional conditions may have influenced the output of one area. It is, for instance, obvious that the American cotton crop is somewhat exceptional and that the United States is an area from which exports of foodstuffs may decrease. Upon a basis of

[1] Harold Wright. *Population*, p. 30.

this kind it is not difficult to create ratios between men and food which seem sufficiently sombre to be received by the public with all the avidity and fervid earnestness of a Scotsman looking forward to his participation in a big funeral.

The purpose of this criticism is not, however, to deny that there is ground for a pessimistic outlook, or the reverse, upon the world's food resources, for that would involve elaborate quantitative estimates for which the material is not available. It is rather to point out that the limits of agricultural expansion, as Sir William Beveridge has argued (see *Presidential Address to Section F of the British Association, Liverpool,* 1923), have never been carefully examined, and to indicate certain features of food consumption and of agricultural production which must be kept in mind, if a due sense of proportion is to be preserved.

First, as a preliminary point, it must be urged that the Law of Diminishing Returns certainly does not sum up the situation. As stated by Marshall (*Principles of Economics,* Chapter III), it runs as follows: "An increase in the capital and labour applied in the cultivation of land causes in general a less than proportionate increase in the amount of produce raised, unless it happens to coincide with improvements in the arts of agriculture." This means that the tendency operates (1) if the time element is eliminated, (2) if the quantity of land is assumed fixed, and (3) if constructive ideas are not developed in technique or organization. As a static statement it may stand, but then it is useless for purposes of this argument. As a dynamic conception it fails to meet the situation, for, as Professor Cannan points out, (1) it is liable to supersessions, (2) it is checked by an antagonizing principle, the progress of civilization.[1] In other words, while it is always true that after a given point labour and capital applied to a fixed area of land will give a diminishing return, the given point is not fixed over periods of time, but is variable. Further, as has been elaborately explained by Wicksteed and Carver, such a proposition holds equally of manufactures, and all that can be said is that the point at which returns begin to diminish may be further removed in some industries than in farming. In addition, it may be observed that, in a study of the limits of agricultural expansion, land cannot be treated in this hypothetical way as the limited factor in production, since, obviously, labour, capital and enterprise may be relatively scarcer than land in many parts of the world.

Let us now turn to the products themselves. It has already been suggested that consideration of wheat and cotton does not exhaust the situation and that a much wider view is necessary. This matter may be brought home to anyone by surveying the ordinary articles of consumption in standard dietaries and by enumerating the various other articles in even humble standards of living. There are (1) the large range of cereals, wheat, barley, oats, rye, maize, rice, millet,

[1] See Cannan, *Theories of Production and Distribution,* p. 177.

sorghum; (2) the important group of animal foodstuffs, along with dairy produce; (3) the starch foods, such as the potato and the banana, the sugars, the fish supplies, vegetables and edible fats, and the fruit group. The problem is, therefore, hinged up with the question of alternatives in dietary, upon how far taste, habit and custom, working through demand, dictate certain forms of production. Wheat is without a doubt the standard foodstuff of the temperate zone, but it plays a different part in different dietaries, and other grains such as rye are still of considerable significance in consumption. It does not follow that conservative adherence to wheat as a staple is necessarily the line of development; variety and change in diet may reduce the outstanding importance of any one crop, and such an alteration would not seem inconsistent with material progress. In any case it must be kept in mind that a great portion of the crops of many countries is not consumed by human beings at all, but by animals. This indirect form of vegetarianism is undoubtedly costly in terms of animal feedstuffs. Further, an argument considered solely upon some comparison of numbers of men and quantities of food tends to overrate the importance of one group of articles in the standard of living, and in a few countries the great wastage of food seems to suggest the satiation point in consumption.

The main necessity of the problem is, therefore, a survey of the conditions of agricultural production, taking into account all systems of farming and their possibilities in all important areas. A few salient characteristics of the position may be sketched out to suggest that farming is by no means easy to tuck away in what Dr. Clapham has called the Diminishing Returns box.

Because all forms of agriculture, both in the temperate and tropical zones, have shown as yet few of the features of large-scale industry, and because the nature of the business presents great difficulties to present-day methods of organizing labour and capital, it is sometimes assumed that the benefits of what John Stuart Mill has termed "the progress of civilization" have meant nothing to farming. This seems a partial and misleading view of the matter since there is already sufficient evidence to show that the influence of capital and of constructive ideas has revolutionized the farming of many countries within one generation. It is true that the actual farm organization varies greatly from country to country, and in tropical agriculture there are, as Willis describes, systems of great primitiveness, but, if attention is confined to the business of farming, vital changes are taking place over large areas in the grouping of the labour, capital, and management with natural resources. Dipping into the pool of new ideas which are being fashioned and applied more and more freely to lessen effort and to reduce costs, there are two classes requiring mention: those resembling inventions and those representing economy in organization. The first type is represented by the research into the structure and properties of the

soil and its effect upon plant life. "It is not too much to say," stated the reporter of the Ministry of Agriculture, "that the discoveries made at Rothamstead with regard to the application of fertilizers to the soil, have completely revolutionized the system of manuring—and hence farming practice—in this and other countries." The investigations into plant breeding have shown results equally striking in the introduction of seeds specially adapted to the climate and need of certain areas and possessing special characteristics such as power to resist diseases, in producing new varieties of plants which breed true, and so on, while plant physiologists are devising methods to improve the health and yield of crops. There are also the researches into specific pests, such as the yet unconquered boll-weevil of the American cotton plantations. Animal breeding and nutrition constitute a field in which discoveries of far-reaching importance have been made within the last twenty years. The case of the milk-giving capacity of the cow and the factors which influence the quantity and quality of the output may be quoted in this connection, as well as the greatly increased rapidity with which stock are now prepared for the market. Agricultural engineering has had a two-fold influence: (1) in achieving notable advances in irrigation and drainage practice, and (2) in the revolutionary change in farm machines, tractors and other implements which is characteristic of recent years, and electrical power agency has opened up new possibilities for the economical use of power upon farms.

Of the second class are the numerous developments in the internal organization of the farm and in the collective organization of agriculture. The problem may be stated in the words of Mr. C. S. Orwin, Director of the Institute of Research into Agricultural Economics at Oxford: "What we have to recognize is that agriculture is still an unorganized industry. It stands to-day midway between the small self-contained and self-sufficing enterprise, run in the main to grow food for the occupier's household, and the industrial organization under which the workers are catering for the market and looking to a monetary return to enable them to secure the necessaries of life." The issue is how far can farming effectively adapt itself to the standards and basis of organization of large-scale industry. That question is being answered by experiments in farm management and by the relatively rapid growth of collective organizations of farming interests in Europe and in America. It is, indeed, arguable that the size of the individual business unit in most branches of agriculture will remain relatively small, because the economies in the use of manures, machines, labour, stock, etc., are not so easily secured as in the factory type of industry. But the same difficulties are not apparent in group associations. At present agriculture hardly competes with other industries for its supply of capital. Its results are masked by the absence of costing, balance sheets, and the joint stock company type of management. The position is much the same both for management and labour. The direction

of this discussion is, therefore, towards the view that rapid changes in the technique and organization of agriculture may occur in many countries in the near future.

Apart from the question of changing standards of production, there are a number of additional facts of which account must be taken in estimating the limits of agricultural expansion.

1. If the statistics of the International Institute of Agriculture be examined, they show for all crops remarkable variations in yield per unit of land in different countries; thus area calculations are not useful guides to future output, and the question of intensive and extensive culture arises. The figures for wheat may be taken for illustration:

1921. Yields in Quintals per Hectare.

Europe—		*America*—	
Germany	20·4.	Canada	8·7.
Belgium	28·4.	U.S.A.	8·6.
Bulgaria	12·1.	Argentine	7·5.
Denmark	34·3.	Uruguay	11·0.
France	16·5.	*Asia*—	
Britain	23·8.	British India	6·5.
Rumania	8·3.	Japan	14·3.
Africa—			
Egypt	17·1.	*Australia*	10·5.
Algeria	8·1.		

It is noticeable that most of the world's great wheat fields have low yields and that in countries like Canada and Australia land is obviously not the scarce factor in production.

2. If reference is made to the relation between the total area of certain countries and their productive area, it immediately becomes apparent, as Sir William Beveridge has pointed out (*Presidential Address to Section F of the British Association, Liverpool*, 1923, p. 12), that huge stretches of land are unaccounted for and lack of knowledge prevents any estimate of the value of the potential agricultural resources of such territories.

3. The great developments of land and sea transport of the last quarter of the nineteenth century, with the use of the refrigerating and chilling processes for meat and the canning and bottling processes for many fruits, allowed of agricultural expansion under favourable conditions in many parts of the world by giving the advantages of large-scale production to distant producers and, although the view has grown up that this expansion and exploitation of new resources has reached a climax, there seems no final ground for suggesting that something similar might not occur again. Some observers have urged that new heaves of expansion would follow the provision of transport facilities in new countries.

4. It is a matter of remark that the limited surveys of crop and meat production, made by writers who approach the problem from

the geographical standpoint, lean to the view that most articles of food, except meat, could easily be increased in quantity without increase in cost: in fact, Mr. J. Russell Smith's account of the *World's Food Resources* would be held by many to err on the side of imaginative optimism, picturing as it does an almost unlimited potential power of food production in both temperate and tropical agriculture.

The preceding considerations suggest the need for a wider and closer survey of the world's reserves than is available at present. They suggest, further, that arguments resting upon the position of particular countries, like Britain or the United States, or upon the conditions of production of special crops, though doubtless of value from a limited point of view, have little bearing upon the broad issue of agricultural expansion, and that attempts to summarize the situation by statements of the Law of Diminishing Returns in a dynamic form are misleading rather than helpful.

Over-population, Emigration and Empire Development

By Dr. E. W. Shanahan.

The widespread unemployment in Great Britain since 1920 has concentrated attention upon emigration to the Dominions as one means of relieving the apparent surplus of population in this country.[1] The question at issue is whether, and on what lines, it is practically possible to redistribute the white population of the Empire "in the manner most conducive to the development, stability, and strength of the whole." As an instrument to the attainment of this ideal we have had since early in 1921 a body known as the Oversea Settlement Committee, the members of which, to judge from their reports,[2] are enthusiastic advocates of emigration, or migration as they prefer to call it; we have also had a Conference of Imperial and Dominion representatives held in London in 1921, which, after considering this among other matters, recommended in their report (Cmd. 1474, Appendix V) a comprehensive policy of Empire land settlement; and we now have Parliamentary sanction for State-aided emigration in the shape of the Empire Settlement Act of last year. These official proceedings are evidence of the fact that the unco-ordinated and largely private agencies that secured the emigration of upwards of a quarter of a million people annually from the United Kingdom to North America and Australasia in the years immediately preceding the war, cannot be relied on now to renew their work on any sufficient scale. Extensive emigration from Great Britain to the Dominions is now felt to be essential, but it is beset with difficulties. As yet it does not seem to be distinctly realized what such emigration involves, nor which is the best way of setting about it. Left to itself the congestion here seems only likely to grow worse, and in applying remedies care has to be taken not to injure some other part of the patient's system. This much, however, at least is clear, that the great bulk of those leaving this country to settle in the Dominions must be in the future, as they have been in the past, persons possessing little or no capital who will have to rely upon manual work in some form as a means of establishing themselves. Owing to this fact and to the snobbish distinction commonly made between manual workers and

[1] Emigration to the United States, even if it were thought desirable, is restricted to very small proportions by the American 3 per cent. law.

[2] Cmd. 1580 and Cmd. 1804.

others, the terms emigration and emigrants have unfortunately suffered debasement, but they are serviceable words, and will be used throughout this discussion. There is no guarantee that if new words, made out of the old by dropping the first letter, are substituted, they will not follow suit; State-aid will not help these or any other terms to more aristocratic status.

Broadly, the argument for emigration is as follows: there is a surplus of population in this country (excluding henceforward the Irish Free State), and the Dominions have, on the other hand, extensive unpopulated areas and ample resources awaiting development, from which it is inferred that by transplanting some selected part (mainly adults) of the excessive population of the home country to the Dominions there will be a gain to both parties from the transfer. For Great Britain will be relieved of some of the people it does not want, and Canada, Australasia and South Africa will have human material wherewith to fill their empty spaces. Further, there will be a gain to the Empire as a whole on the economic side through the resulting addition to its agricultural and other primary producers, and on the political side through increased ties of kinship and affection. At first sight all this seems straightforward enough, but queries can well be raised upon points in premiss, argument, and conclusion. Is the home country really so much over-populated with the right sort of people? Are its industries, including agriculture for example, so highly developed that further reasonably remunerative employment cannot be found with a little ingenuity for energetic and enterprising workers at the same outlay of capital as will be necessary for them to start farming overseas? Is there any guarantee that emigrants (who will be mostly city-bred) will not drift into colonial town factories and there, behind the protection of a tariff, compete against British industries? Is it a fact that by sending off some of the best workers British industries thereby become more efficient and so able to absorb more of the unemployed and under-employed? Can appreciable numbers of town-bred emigrants be settled in agriculture overseas without enormous expenditure and risk of numerous failures? Does a survey of our adult population show that we have any great surplus of suitable men, meaning trained agricultural workers, or of suitable women, that is, domestic workers and potential farmers' wives, for emigration?

It will prove difficult to give a thoroughly satisfactory answer to some of these questions. Moreover, a case against emigration, at all events adult emigration, can be made by urging that it is bad business for a country to be constantly at the expense of rearing numbers of persons to productive age and then handing them on, free of maintenance cost so to speak, to other countries; that the selective process that emigration has in practice always involved, and as at present organized still involves, is bound to lower the standard of the remaining population, and that this may in part account for the very much higher ratio of unemployment in Great Britain than

in any other country during the last two years ; and that there are relatively few among modern city-dwellers who possess both the constitution and the temperament required for adaptation to the rough pioneering work which the Dominions expect from immigrants, for the simple reason that they cannot get enough of their own people to undertake it. Indeed, even those brought up to agricultural work in this country may find it hard enough to establish themselves in either Canada or Australia, whither the majority necessarily go, unless they are possessed of some capital. The conditions in both these countries are vastly different from those obtaining here, and more especially so in the remoter districts which fall to the lot of new settlers without means to buy and equip improved land, which commands a high price anywhere near a centre of population. It is positively harmful to the end in view, as well as cruel to the individual, to encourage average people to emigrate to places where only the exceptional can be successful and happy. In addition to all this, there is the question of expense ; since private emigration agencies have broken down, Government agencies both British and Dominion have taken up the work, which is likely to prove costly enough to public funds in proportion to the number of persons from Great Britain settled overseas.

The whole question of emigration has to be viewed from three standpoints, that of British policy, that of Dominion policy, and that of the emigrants. Clearly nothing of permanent value can be achieved, unless the course taken is in harmony with the interests of all three. With regard to the home country's interest in emigration, the immediate motive is the obvious one of securing some relief from over-population either actual or threatened, while there is also the further interest of populating vacant lands in the overseas Empire and incidentally of maintaining and strengthening the ties between the new lands and the old. But no very clear answer has yet been given as to what people can best be spared and should be encouraged to emigrate. We should, of course, be very happy to lose some of the less efficient who are either unemployed at present or are apt to be so at any time, if only that were possible. It is, however, quite an open question whether there are many of working age who cannot find employment here and who at the same time are likely to make good colonists abroad. In this connection the findings of the Dominions Commission in their Final Report point to the existence of a smaller effective surplus than is generally supposed. If we consider adult males, we are faced with the loss of agricultural workers of whom we have, or should have, none too many,[1] or of selected town-dwellers possessed of energy, enterprise, adaptability, and full bodily strength—a hard price to pay for the

[1] *Dominions Commission, Final Report* (Cd. 8462), par. 439 : " There were clear indications before 1914 that the agricultural population of the United Kingdom, on which the Dominions had drawn in past years, was no longer capable of providing any considerable supply of migrants."

corresponding relief from over-population. If we think of women, the position is pretty much the same, in spite of the fact that the recent census showed that there is an excess of nearly two million females over males in Great Britain. Substitute women for males and domestic servants for agricultural workers, and the rest of the preceding sentence can be read as it stands.

The immigration policy of the Dominions is simple enough in broad outline. Their pressing needs are, first, a rapid increase in their agricultural populations, and, second, some remedy for their great shortage of domestic helpers. It is true that males are more numerous than females in Canada, Australia, and New Zealand, and that, therefore, the chances of marriage for women immigrants are probably higher than if they remained in Great Britain, but they are not so high as might be supposed. The excess of males in these three countries is found, not in the towns (where males are usually in the minority) but in the remoter country districts, which are at present unsuited to women from this country, or, indeed, to any women. Except as female domestic workers there is little room for immigrants in colonial towns. In these newer British lands there is the same gravitation towards the towns as in the old ; in fact, this city-seeking appears to be one of the characteristics, if not diseases, of Anglo-Saxon civilization. Throughout the Dominions there are already more than enough people in the towns ; industries and commerce are relatively overcrowded while agriculture tends to be neglected, so that further accessions of town-dwellers seeking urban employments would be viewed as aggravating an already troublesome problem.

As regards the emigrants themselves, who take the plunge of finding new homes thousands of miles away from the only country most of them have ever known, it is quite certain that unless the greater number have reason to be satisfied with their new surroundings, there is little hope of emigration developing into a steady self-supporting movement. There is no purpose served in getting people out to the Dominions, if they cannot help in their development, if after disappointments and disillusions they seek the first opportunity of returning to England, or if, though remaining, they write to their relatives and friends warning them against colonial life.

If an attempt is made to discover upon what lines emigration can be worked in harmony with the standpoints of the three parties to it, the most striking result is a negative one, namely, that almost all adult emigration stands condemned as undesirable from one or more of these standpoints. The exceptions, which cover altogether but a comparatively small number of persons, include perhaps the following categories ; first, skilled artisans, whether married or single, for whose services there happens to be an urgent demand abroad, provided there is no shortage of them at home ; second, a limited number of enterprising and robust single men brought up

to agriculture and possessing, preferably, a little capital; third, young unmarried women who would not take up domestic service here, but are prepared to do so under colonial conditions; and, fourth, a small class, that has always existed in this country, of adaptable but usually unconventional young men to whom the freedom and even the hardships of colonial life make a strong appeal and who are therefore much more likely to achieve success in the Dominions than at home. Hitherto much of the emigration from this country was conducted directly or indirectly on a one-sided basis, the Dominions seeking to attract from the British Isles the best material for their own purposes, regardless of other considerations. For a long time past there has been a reversal of the process by which people were sent to the Dominions, because their friends wished to be rid of them. If the latter process was unfair, so is the former, and it should not be countenanced. It is possible, too, that if intending emigrants were fully informed by an impartial authority of what to expect on arrival, there would be fewer departures of adults. To people who have been brought up in towns, the comparative loneliness and lack of excitement of Dominion farming life and the strenuous work it involves are serious drawbacks. A man cannot learn to run a farm as quickly as he can manage a rifle or a factory machine. The first qualifications in men emigrants are good physique and a strong desire, amounting almost to a passion, for country life and pursuits, and the next are adaptability and enterprise. Without these essentials there is little chance of real advantage either for the men themselves or for the countries receiving them. The Dominions require more population, but of a special type. The fact that Great Britain affords such a contrast to the Dominions in being as predominantly industrial and urban as they are agricultural, forces us to admit, however keenly we favour emigration on general grounds, that the present conditions of life in the home country are not such on the whole as to produce men and women suitable for migration to the newer British lands.

When we consider the Empire as a whole, the argument for emigration appears to gain strength from the fact that the proportion of the white population settled in agriculture is smaller than in almost any other political unit; in view of our agricultural resources, we import from foreign countries an unduly large part of our requirements in foodstuffs and fibres. It is generally agreed, however, that the soil of Great Britain is under-farmed as compared with that of other countries in the same stage of development. The consideration of any possible remedies for this backwardness has a direct bearing upon the whole question of emigration. Whether the cause lies mainly in the tenant system peculiar to this country or in other conditions, it might be worth while spending some effort and money in reorganizing British agriculture so as to provide openings for adults with a taste for farming, instead of sending them to find openings overseas. It seems fair to urge that at least equal attention

might be given, so far as public resources are concerned, to the former as to the latter. The ordinary theory is that in the newer countries, where farming is still generally extensive rather than intensive, the worker can produce more and get a better return for each day's work than in the old. This may be true as things actually stand, but it ignores several facts; first, that more gets done for some reason or other in the average colonial working day; second, that marketing is generally much less efficiently organized in Great Britain than in the Dominions; and third, that the Dominion farmer's return is subject to deduction for disutilities in the form of isolation and hardships to an extent almost unknown here. There is little doubt that the continuance of trade depression and unemployment in Great Britain is due mainly to a serious decline in the proportion of food and raw material producers to the industrial and trading population within the orbit of British trade. Obviously, however, some solution of the trouble is attained equally well, and, indeed, better so far as purchases of British manufactures are concerned, if additional people are established in agriculture at home rather than in the Dominions. If the Empire as a whole fails to make proper use of its agricultural resources, it is largely because the urban habit has developed to such an extreme point in Great Britain that she can neither fully utilize her own land nor readily supply the stream of country-reared emigrants required for a more adequate exploitation of the agricultural wealth of the Dominions.

Notwithstanding all this, upon considering the population of Great Britain, its density, its rate of growth, and especially its relation to resources and markets, one is compelled to advocate emigration to the Dominions as one means of helping to preserve a balance and so of maintaining the standard of living. In the decade 1902-11, while the increase of population in the United Kingdom was 3·8 millions, the net emigration was 1·65 millions, and if allowance be made for the fact that many of the emigrants of the earlier years were young men and women to whom children were born before the close of the decade, it is possibly not far short of the truth to say that emigration reduced the natural increase by more than one-third. Even during the years 1911-13, when net emigration reached its high-water mark and absorbed fully one-half of the natural increase, the actual increase in population in this country was greater than it had ever been before. During the decade ending in 1921, in spite of the war, the increase of population in Great Britain was 1·9 millions, while the net increase during 1921 is estimated at 390,000. Even before the war, according to some authorities there were evidences of overpopulation in this country, and there is no need to labour the point that in the present disorganized state of European markets, and with the development of competitive manufacturing industries in North America and elsewhere during and since the war, we shall have difficulty in maintaining at our accustomed standard a population which is not only two millions greater than in 1911, but is increasing

at the rate of over a million every three years. In the absence of a marked decline in the natural increase, of which there is at present little evidence, it is urgent to find room for large numbers every year overseas. To whatever extent emigrants become absorbed into primary production in the Dominions, the markets for British goods and *pari passu* the state of employment in Great Britain tend to improve.[1]

How is this overflow to be secured in a satisfactory way? The above paragraphs have drawn attention to the difficulties and disadvantages of extensive adult emigration, but most of these disappear in the case of child and juvenile emigration, if properly organized. Younger persons are naturally more adaptable, and they can be drawn mainly from the urban population of this country without much risk of their failing to engage successfully and permanently in Dominion agriculture. It is possible to take male and female emigrants in more or less equal numbers and so avoid the grave charge of still further increasing the disproportion between the sexes to which the emigration of adults is open. The cost of schemes for transplanting juveniles, if not children, is likely to be relatively lower per head, since the initial capital expenditure for housing, farms, etc., largely disappears. There is no question of taking them from employments in which there is a shortage of workers in Great Britain, since they will hardly have reached employable age. Finally, although some selection of young persons is, and should be, made, this class of emigration is fairer to the home country inasmuch as the Dominions would take a good average sample, as it were, and endeavour to make the best of those that prove less efficient as well as of the rest, instead of relying as hitherto mainly upon the selection of the specially enterprising and adaptable among adults to compensate for the disadvantages of such persons through age and unsuitable experience, for Dominion farming. It would be fairer to this country also, which would not be charged with the whole expense of rearing emigrants to a really productive age. It is noteworthy that neither the Dominions Commission nor the Oversea Settlement Committee speak critically of juvenile and child emigration, except with reference to the inadequate arrangements or lack of arrangements for dealing with this work.[2]

The population figures given above show that emigration to be effective must be on a large scale. At the same time the rate of natural increase in the Dominions is relatively low, and for the filling up of their empty spaces they have to look in no small degree

[1] Cmd. 1804, p. 8: "If the population of the Dominions is substantially increased, this country, which exports more largely per head of the population to the Dominions than to foreign countries, should be capable of maintaining a population even greater than at present." The report goes on to say that in the Committee's opinion serious over-population exists under the present conditions.

[2] See *Daily Telegraph*, April 14th, 1923, p. 11, for a report on the success of recent boy immigration into New South Wales.

to new arrivals. A few thousands or even a few tens of thousands a year make little difference. On either side what is required is an efficient organization capable of dealing with hundreds of thousands. It is estimated that some 750,000 children leave the schools in Great Britain every year, and it is probable that at least a third of these would have better opportunities in life if they migrated under suitably arranged conditions to the Dominions; while there is in addition at present a very large number of young persons between school-leaving age and 20, who are either unemployed or are engaged in blind-alley or unremunerative employments. "Our belief is that while all young emigrants have great chances of success, those whose surroundings in early life have not been normal and whose environment has not been healthy are likely to benefit to an especial degree by the freer life in the Dominions."[1] It may be objected that wherever there is anything of a home, its ties are likely to be too strong to allow of young members departing for distant lands from which few are likely to return, except perhaps on brief visits—that parents and children alike will be averse to separation. Against this, however, it may be urged that many homes are now overcrowded, so that some of the children will, in any case, have to find room elsewhere if decent conditions are to be maintained, that as a matter of common experience it means a much less serious wrench to leave the family circle and friends in one's teens than it does later on in life, and that the successful establishment in the Dominions of those who have emigrated young is often the means later on of getting brothers and sisters, friends, and even parents to leave their old home and join those who have preceded them overseas. This is also the best form of emigration from another point of view, namely, that of the stability of the Empire; for while persons who have emigrated between the ages of 10 and 20 can usually adapt themselves so well to their new surroundings as to become thorough colonials, yet they rarely forget the country of their birth and early upbringing, more especially if anyone they can remember is still living in it. To the objection that extensive emigration of the young would unduly increase the proportion of older persons in the home population, the answer is that a fall in the birth-rate would produce the same result.

Needless to say, large-scale emigration of young persons would necessitate a much more elaborate organization than at present exists in the Dominions for the reception, distribution, and supervision of the new arrivals. A start has been made in this direction by some of the Governments concerned, but as yet the administration is too centralized. Numerous farm or other suitable stations require to be established to serve as the first headquarters of new arrivals, from which they can be placed after training in suitable openings and to the officers of which they can look for help and advice in case of need. To complete the organization there should be officers, especially women officers, representing the Imperial

[1] *Dominions Commission* (Cd. 8462), par. 508.

Government, stationed in the Dominions and charged with the duty of looking after the welfare of each immigrant and of facilitating the arrangements for his or her settlement. The scheme proposed by the Agent-General for Ontario (outlined in Cmd. 1804, p. 12) might well be used as a model for similar organizations in the eight other Canadian provinces, in the six Australian States, in New Zealand and in South Africa. Once the more obvious difficulties connected with juvenile emigration have been met, most of the prejudices against it will go. Such emigrants should be drawn widely, from the middle as well as from the working classes. For the future of the Empire, as of the race, is with the young.

Two More Books on Population

By Dr. Hugh Dalton.

So far at any rate as British economists are concerned, the population controversy has come to life again since 1918, and at the present time it gains vitality month by month. How far the echoes reach is doubtful; there are many by whom the words of economists are still unheard or unheeded. But one practical result of this controversy is, I think, beyond doubt. Whatever its effect on the opinions of the few, its effect on the conduct of the many will be to spread the practice of birth control. The idea, through mere discussion and rumour, will gain ground. How much ground, and how quickly, remains to be seen.

Two books, both cheap enough to have a fair prospect of large sales, have recently been added to the rapidly growing literature of the subject.[1] Mr. Wright's book, like most of the Cambridge Economic Handbooks, is agreeably written. Brightened by many happy illustrations, the argument is presented with skill and an air of academic detachment. Nearly a third of the book is concerned with the history of theory regarding population, an unusual feature in the work of the Cambridge school. But in other respects Mr. Wright is not untrue to type. Marshall has bidden us seek "the many in the one, the one in the many," and our search is easily rewarded in the Cambridge Economic Handbooks, together with their weekly supplement, the *Nation and Athenæum*. But no intellectual subservience need be implied, even in so remarkable a unity of economic doctrine and outlook. His Master's Voice may sometimes be heard in the distance, but it is apt to be wonderfully persuasive, even though we cling tenaciously to our full independence of judgment.

There is an old distinction between proving a proposition and making it appear plausible. Perhaps, in strict logic and in the light of our present knowledge, only the second alternative is open to those who critically count our heads. Mr. Wright, at any rate, has not, I think, advanced beyond it. But he succeeds pretty well in "creating an atmosphere." The tone of his book is given by such a passage as the following (p. 67). "The preceding argument might be thought to imply that an increase in the number of the inhabitants of a country must always lower the standard of life which has hitherto prevailed there. That is not so. (Some) factors . . . make a

[1] *Population*, by Harold Wright, with a Preface by J. M. Keynes. (Nisbet and Cambridge University Press.) 1923. pp. xiv.+178. 5s. *The Problem of Population*, by Harold Cox. (Cape.) 1922. pp. 198. 6s.

certain increase in numbers frequently desirable . . . If, therefore, we do not dwell so much upon the need for a certain increase as upon the disadvantages of an excessive increase, it is only because that 'power of population,' to which Malthus called attention, is so great that the former is always forthcoming when it is required. A multitude of the unborn are always crowding round the door of life. Open it a little and they squeeze through in such numbers that you will have much ado to close it again!" Or by this (pp. 109-110). "It may here be asked why we so seldom speak of the evil of under-population . . . The answer is that the power of population is so great that it will very rapidly fill up any opening which may appear for its expansion. . . . It is quite true that many parts of the world have become better to live in as the number of inhabitants has increased, but . . . at each stage of development the population has been at least as great as could be maintained without depressing the standard of life." Or again, "it is probable that (in civilised countries immediately before the war) the wealth per head would have been increasing faster still, if the population had not been growing so rapidly" (p. 71). Some will challenge general statements of this kind and demand proofs. Could Mr. Wright, in reply, do much more than echo Stephen Reynolds' modest "Seems So"? Further, it is significant of the author's outlook that, while the "Law of Diminishing Returns" is treated as a grave menace perpetually overhanging the world, "increasing returns" appear only as an occasional happy incident, without the title of a "law" or even the dignity of capital letters. This is a breach, right or wrong, with the older Cambridge tradition. For Marshall, on such points of detail at any rate, holds the balance even. (See, e.g., *Principles*, fifth edition, pp. 318-20.)

Even in the most up-to-date discussions of the population question there is still apt to be much ado about Malthus. Given the limit imposed by the plan of the series upon the length of Mr. Wright's book, it was hardly worth while to spend so much space in championing the founder of Cambridge economic pessimism against various detractors. It would have been interesting, and more valuable to the modern student, to see certain of Mr. Wright's own lines of thought carried further. A more elaborate analysis of the real rate of exchange between exports and imports, and the significance of its variation, would have been useful. Alternative definitions of "over-population" might have been distinguished and examined. His suggestive remarks (pp. 118-19) on the possible relation between the social status of women and the size of their families might have been expanded. Nor does he follow up "the relation between quantity and quality of population" as far as he might have done. The term "quality" in this connection has been unduly monopolised by biologists and eugenists. Economists should not so long have tolerated this. For is it not obvious and important that the future economic quality of the children of a working-class family, living on

a given weekly income, will tend to vary inversely with their number? Without conceding too much to the eugenists, Mr. Wright concludes that "clearly birth control has begun to exercise an influence on numbers at the wrong end of the social scale." "Probably," he adds, "this was inevitable; certainly it was to be expected, if account be taken of the conspiracy, in which practically the whole of the educated classes have joined until recently, to keep working men and women in ignorance of their duty not to bring children into the world unless they have a reasonable expectation of being able to provide for them, and of the means by which this duty can be fulfilled" (p. 156).

Page 111 contains a mathematical untruth. "The death-rate cannot fall to zero, unless Godwin's dream is realized and we live for ever; so if the birth-rate continues to fall, the rate of increase must diminish and eventually become a rate of decrease." This is not so. With the death-rate stationary, or even very slowly rising, the birth-rate might continually decline and yet births continue to exceed deaths indefinitely. A smaller rate on a larger total may be greater than a larger rate on a smaller total. A continually falling birth-rate might, in mathematical language, tend to a limit greater than zero, while a continually rising death-rate might tend to a limit smaller than this but greater than zero.

Mr. Harold Cox is more lively than Mr. Wright, but not less lucid. He has a Gallic charm and simplicity of style which is a valuable asset in popular controversy. He goes the whole hog for birth control, even to the point of demanding "a League of Low Birth-rate Nations, prepared to take joint action, if necessary, against any race that, by its too great fecundity, is threatening the peace of the world" (p. 85).

His treatment of the purely economic aspect of the matter is much slighter than Mr. Wright's and, indeed, amounts to little more than a demonstration that, if the population of any area continues to increase without limit, it will sooner or later become excessive. He gives no really conclusive proof that, in England for example, this critical point has already been passed. "Some countries," he remarks, "may be described as already over full. That is to say, that the existing population cannot maintain itself upon the resources of the territory which it occupies. In this sense England is certainly over full. So far as food production is concerned this fact is universally admitted" (p. 36). This is a new, but hardly a satisfactory, definition of "over full." A community which, by protection or otherwise, achieved economic self-sufficiency at a low average standard of life would not, it seems, be over full. But it might become so if, throwing down its barriers against the outer world, it attained a higher standard on a basis of world-wide trade and industrial specialisation. Is this a useful conception? Perhaps there is a saving ambiguity in the slippery word "maintain." Maintain at what level? The level of bare subsistence, or of habitual

consumption, or of a " reasonable " consumption, desired but not yet reached? Mr. Cox is indefinite on this point, though he protests, as against " those members of the second Birth-rate Commission, who . . . anxious to find some justification for a further increase of the population of Great Britain, suggested that a greater population could be supported off the soil if people were to eat potatoes instead of beef," that " it is not worth while to come into the world —or to bring others into it—merely to plant potatoes, to eat potatoes, and to die " (pp. 37-8).

But it is a marked feature of this book that it shows an understanding, sometimes curiously lacking in writers on this question, of the simple realities of life among large sections of the poor. " The fear of the over-growth of her family is an ever-present dread to the woman of the poorer classes. This fear drives many women in the English working classes to the practice of abortion " (p. 131). In the slums to-day people speak no longer of " war babies," but of " unemployed babies," a tragic brood. Infantile mortality, according to the evidence of a doctor quoted by Mr. Cox, is often " welcomed by the mother as a blessed relief " (p. 102). It is idle to imagine that no attempts are made, in the absence of " birth control knowledge," to prevent such births. Systematic research would probably reveal the widespread adoption of certain alternatives to contraceptives in the ordinary sense, and the publication of the facts disclosed would help to give reality to discussions of practical policy regarding birth control. Another line of research is suggested by Mr. Cox's quotation from an American medical officer, who maintains, on the basis of a wide practical experience, that the younger members of large families are specially liable to tuberculosis (p. 103).

Mr. Cox regards " the overgrowth of population as the most persistent cause of war " (p. 94), though he admits that there are others. " In England, France and Germany alike we find that the horrible slaughter of the Great War has stimulated a demand for a larger population to be slaughtered in future wars, the excuse being that each country must be prepared with a sufficient mass of men to oppose the men of other countries. Yet if these masses of men are called into being so that they may be ready to fight one another if the occasion should arise, their existence will itself provoke that occasion " (p. 84). This argument is not, perhaps, quite so strong as it seems at first sight. A stationary population is not always more pacific than one which is growing, and the demand of warmongers for an " outlet for surplus population " is frequently a mere dishonest pretext cloaking other aims.

Against " certain groups of ecclesiastics who seem to hold the belief that children ought to be brought into this world in unlimited numbers, even by mentally defective parents, in order that more souls may be created to fill another world " (p. 7), Mr. Cox directs a well-sustained dialectic. There are certain arguments against birth control, or in favour of a larger population, which are import-

ant and deserve careful study. But the ecclesiastical arguments in question fall outside this class. Mr. Cox, however, deals with them patiently, though ruthlessly. Incidentally he is able to cite, not only the authority of such distinguished Anglicans as Dean Inge and Lord Dawson of Penn, but the surprisingly low birth-rate among the wives of the clergy (p. 99).

Wages and Production in a Durham Colliery

By Professor A. L. Bowley and Margaret H. Hogg.

1. A number of bulky volumes containing the details of wages paid and coal produced in successive fortnights in a colliery near Durham have been presented to the Statistical Department. Detailed records of this kind are very rare, and in their absence accounts of wages and earnings and their changes depend on averages and on general agreements covering wide areas, so that the fortunes of individuals are not recorded and attention is focused on a hypothetical average man, who remains at one age and always earns the average amount in his district and occupation.

By means of these volumes we can follow the earnings of individuals at least through one year, we can find the relationship between the wages in different occupations, and we can trace the effect of changes in the county average on the payments in a particular colliery. We cannot, however, make any generalization applicable to the whole colliery industry, not even in the county of Durham; many studies of this kind would be necessary for completeness; but the colliery in question appears to have no unusual qualities.

The wage-books during three years (each of twenty-six "pays," pay-days being fortnightly) separated by nine or ten years' interval were examined, those for 1884-5 in minute detail, those for 1894-5 and 1903-4 more summarily.

2.[1] The changes in rates, as they would be generally recorded, may be thus summarized:

DURHAM COAL-HEWER'S WAGES—Relation to the 1879 Standard. 1879 = 100.

End of 1884—106½	End of 1891—135	End of 1898—125
1885—105	1892—125	1899—133¾
1886—103¾	1893—125	1900—165
1887—103¾	1894—125	1901—140
1888—103¾	1895—115	1902—133¾
1889—125	1896—115	1903—132½
1890—130	1897—117½	1904—127½

The nominal daily rates of Durham coal-hewers are stated at 4s. 6½d. in 1884, 4s. 5¾d. in 1885, and 5s. 5d. in 1894 and 1895 (Cd. 1761). For 1883 we also find that in Durham and neighbourhood the daily rates of hewers were 4s. 5d. to 4s. 9d., of other under ground workers 3s. 5d., of workers above ground 3s. 3d., and

[1] On the subject of this and the next paragraph, *Wages in the Coal Industry*, by J. W. F. Rowe (P. S. King), recently issued in the School series, should be consulted.

of enginemen 4s. 3d. Lads and boys received 2s. 4d. under ground, 1s. 10d. above ground (C. 5172). The Labour Commission of 1891-4 (C-7421-I) shows that hewers' wages were 4s. 4d. in 1885 and 5s. 11d. in 1891 for six hours at the face, the usual period of working. These statements, which presumably refer to an average for the county, are in close agreement with each other.

TABLE I.—General summary of work done and wages cost in 3 years.

	1884-5.	1894-5.	1903-4.
Coal got (tons)	179,731	217,389	228,359
Days worked	239	248	275
Shifts worked...	114,099	121,252	175,048
Tons per shift per man	1·575	1·795	1·304
,, ,, ,, under ground worker ...	2·128	2·432	1·811
,, ,, ,, hewer or putter ...	3·772	4·055	3·090
Tons per year per man	379·4	512·4	351·3
,, ,, ,, under ground worker ...	484·4	679·3	467·9
,, ,, ,, hewer or putter ...	843·8	1235·0	924·5
Wages per *pay*.—Under ground : datal ...	£1 8 1	£1 17 1	£1 13 3
Hewers and putters...	2 1 3	3 9 7	3 8 8
Above ground	1 3 0	2 7 1	1 7 7
All	1 12 11	2 12 10	2 5 3
	s. d.	s. d.	s. d.
,, ,, *shift*—Under ground : datal ...	3 2	3 9½	4 0
Hewers	4 11	6 4½	6 1
Putters	3 11	5 1	5 0
Above ground	2 1	4 0	2 4½
All	3 6½	4 9½	4 4½
	s. d.	s. d.	s. d.
,, ,, *ton*—Under ground : datal ...	7·73	7·51	10·97
Hewers	1 1·54	1 3·76	1 8·88
Putters	1·68	1·85	2·26
Above ground	4·10	7·03	6·07
All	2 3·06	2 8·16	3 4·20
Average number paid—			
Under ground : Datal	158	144	242
Hewers and putters	213	176	247
Above ground ...	103	104	162
All	474	424	650

3. The general average results of the investigation are summarized in Tables I and II. From the pay-sheets we find that hewers' wages per shift averaged 4s. 11d. in 1884-5, 6s. 4½d. in 1894-5, and 6s. 1d. in 1903-4. The increases were thus 29 per cent. and 23½ per cent. above the first date instead of 17 per cent. and 20 per cent. as indicated by the standard changes. The difference is partly accounted for by the custom of reckoning each 1¼ per cent. variation in the percentage as ¾d. on wages ; since the average per shift in 1879 was about 51d. this method makes the effective increase about six-fifths of the nominal increase. Further, it appears that in good times earnings tend to increase relatively to rates ; and the first and third of our selected years were in periods of depression, the middle period followed a boom. Whatever the cause, it is clear that the recognized changes are not exactly reflected in wages.

Wages for putting increased 30 per cent. in the first ten years, and were in 1903-4 27 per cent. above the level of 1884-5; it is not improbable that the work was heavier and the men employed older at the latter date.

Owing to an unexplained increase in the wages of surface workers, the general average earnings of all employed per shift rose more than those of hewers and putters, and in 1894-5 were 35 per cent. above 1884-5; at the third date they were only 23 per cent. above.

Earnings per shift are a very imperfect index of earnings per annum or fortnightly. Earnings per pay per man were in 1894-5 60 per cent., and in 1903-4 37 per cent., above those in 1884-5. The irregularity of work is thus seen to be a very important factor in colliery earnings.

In the first period the tons got per shift per hewer or putter increased from 3·77 to 4·05, i.e., 7 per cent., while wages per ton increased 17 per cent.; in the second period the output fell to 3·09 tons, that is, to 18 per cent. below that of 1884-5, while wages per ton increased to 52 per cent. above those of 1884-5. The causes of these striking changes are not shown in the statistics, but the fact that they occur shows how dangerous are any facile generalizations which connect the price of coal with the effort of the miners.

4. The following table shows the relation of wages to the prices of coal:

	Wages per ton all workers.		County rate.	Average value at pit: Great Britain		Average value of coal exported.	
	d.	%		d.	%	d.	%
1884-5 ...	27·1	100	100	63·4	100	109·5	100
1894-5 ...	32·2	119	117	74·9	118	117·7	107
1903-4 ...	40·2	148	120	89·3	141	135·6	124

Thus the wages per ton in the particular colliery bore a slightly increasing proportion to the average value of coal at the pit in Great Britain.

In addition to wages there are customary allowances in Durham. Loads of coal are delivered free (except for a cartage charge of 6d. per fortnight) to married hewers and some others about once in three weeks; the same men have free houses with gardens in some cases and in others an allowance towards rent. (*Labour Commission*, C-7421-I, p. 41).

Variation in Earnings of Hewers and Putters in 1884-5

5. Hewers work in pairs, one on the day and one on the night shift; the wages are made up once a fortnight and divided equally between the pair. The division between hewers and putters is not complete, since putters sometimes hew. The pay for separate shifts is not recorded, and it has been assumed where necessary that it was the same for each shift in the same fortnight, the wages received on a pay-day being divided by the number of shifts.

To exhibit the variation in earnings the median (M), the quartiles (Q_1, Q_3), the extreme deciles (D_1, D_9), have been estimated. Thus

TABLE II.—Detail of number of men employed and their wages.

	Average number of men paid. '84-5, '94-5, '03-4.			Wages per shift per man. '84-5, '94-5, '03-4.						Wages per ton. '84-5, '94-5, '03-4.		
				s.	d.	s.	d.	s.	d.	d.	d.	d.
Overmen and deputies	... 25	28	33	4	11·3	5	5·3	5	8·7	2·08	2·32	2·87
Driving	... 24	15	20	2	1·1	1	6·7	1	9·7	·25	·30	·49
Engine planes	... 13	16	24	1	5·2	1	10·2	2	4·2	·31	·37	·59
Boys at flats	... 7	1	—	1	8·9	2	4·8		—	·19	·05	—
Trappers and switchkeepers	... 3	4	11	1	3·1	1	5·3	1	7·6	·05	·08	·22
Coupling tubs	... 5	4	7	1	6·5	1	6·7	1	2·1	·11	·08	·18
Helping up	... 5	2	12	1	11·8	2	0	2	3·1	·14	·05	·33
Chainbank	... 4	—	—	1	9·4		—		—	·11	—	—
Rolleywaymen	... 6	7	11		?	3	11·8	4	2·8	·36	·44	·59
Waste work	... 6	5	8	1	11·4	4	3·0	4	5·1	·19	·30	·50
Shift work, waterleading and heightmaking	... 38	36	62	3	9·2	4	3·6	4	10·8	2·39	2·45	3·88
Calling workmen, shaft signals, and lamps	... 6	6	13	2	7·0	3	5·7	3	8·5	·26	·40	·53
Banksmen and onsetters	... 6	6	8	1	9·4	1	11·9	5	4·9	·49	·42	·50
Mason work	... 2	—	—	3	10·5		—		—	·16	—	—
Timber drawing	... 8	12	16?		?	6	4·7		?	·08	·37	·27
Datal work	... 158	144	242	3	1·8	3	9·7	4	0	7·73	7·52	10·97
Hewing	... 213	176	247	4	11·2	6	4·4	6	1·1	13·54	15·76	20·88
Putting				3	11·0	5	1·3	4	11·5	1·68	1·85	2·26
All Underground	... 371	320	488	4	0·9	5	1·1	5	1·7	22·96	25·13	34·12
Screening	... 24	31	57	1	9·7	1	10·1	1	9·9	·73	·78	1·48
Enginemen and firemen	... 20	22	22	2	8·3	4	4·6	3	7·7	11·18	2·04	1·56
Joiners and fitters...	... 13	12	18	2	0	4	8·4	2	1·4	·54	1·03	·63
Smiths and strikers	... 18	15	19	2	2·4	4	4·5	3	2·0	·74	1·20	1·05
Offices	... 5	8	10	3	9·5	4	1·2	2	11·0	·41	·52	·50
Cartmen and labourers	... 14	16	23	1	1·6	3	5·6	1	10·2	·31	·82	·66
Masons	... 9	—	12	1	2·3		—	1	2·1	·18	—	·21
All Above Ground	... 103	104	162	2	0·9	4	0	2	4·4	4·10	7·03	6·08
Totals, or Averages...	... 474	424	650	3	6·6	4	9·6	4	4·4	27·06	32·16	40·20

in the first table one-tenth of the payments are under 3s. 5d. (D_1), one-quarter under 3s. 11d. (Q_1), one-half under 4s. 6d. (M), three-quarters under 5s. 1d. (Q_3), and nine-tenths under 5s. 7d. (D_9). Two measures of variation are used: V_1 is half the difference between Q_1 and Q_3, divided by M, V_3 half the difference between D_1 and D_9 divided by M. Thus in the first table $V_1 = \frac{1}{2}(5s.\ 1d. - 3s.\ 11d.) \div 4s.\ 6d. = \cdot 13$, and $V_2 = \frac{1}{2}(5s.\ 7d. - 3s.\ 5d.) \div 4s.\ 6d. = \cdot 24$.

This result may be thus expressed: half of the sums paid per shift were within 13 per cent. of the median sum, and four-fifths were within 24 per cent.

TABLE A.—Earnings per shift (hewing or putting) of all shifts paid on 16 pay-days in the year 1884-5.[1]

Earnings.	Number of shifts.	Per cent. of total.
Under 2s.	25	·1
2s. and under 2s. 6d. ...	200	·6
2s. 6d. ,, 3s. ...	1,038	3·6
3s. ,, 3s. 6d. ...	2,264	7·8
3s. 6d. ,, 4s. ...	4,587	15·8
4s. ,, 4s. 6d. ...	6,224	21·5
4s. 6d. ,, 5s. ...	6,689	23·1
5s. ,, 5s. 6d. ...	4,285	14·8
5s. 6d. ,, 6s. ...	2,242	7·7
6s. ,, 6s. 6d. ...	846	2·9
6s. 6d. ,, 7s. ...	351	1·2
7s. ,, 7s. 6d. ...	163	·6
7s. 6d. ,, 8s. ...	30	·1
8s. or more	39	·1
Total	28,983	100·0

Average 4·29s. $V_1 = \cdot 13$, $V_2 = \cdot 24$.

6. In the preceding paragraph all men (252 in number) are merged together.[2] Of these seventy-four did not appear in all the months, while the remaining 178 can be followed throughout, though they did not all work every fortnight.

TABLE B.—Number of shifts worked in 12 months by 178 regular men.

Number of shifts.	Number of men.
Under 200	10
200—	2
205—	10
210—	11
215—	12
220—	16
225—	14
230—	52
235—	43
240—	8
	178

Average 225. $V_1 = \cdot 03$, $V_2 = \cdot 06$.

[1] The earnings in Tables A to E are *net* earnings, while those in Tables I and II are *gross* earnings. The gross earnings would be roughly 5 per cent. more than the net, though the difference varies. It consists of charges for fire-coal, water, fines, doctor, and "fund."

[2] The average number paid per pay-day in 1884-5 was 213.

The annual earnings of the same men averaged £51·19, i.e., 4s. 8d. per shift. The distribution of earnings was as follows:

TABLE C.

Annual Earnings.	Number of men.
£32 10s.—	9
£37 10s.—	9
£42 10s.—	24
£47 10s.—	44
£52 10s.—	58
£57 10s.—	24
£62 10s.—	3
£67 10s.—	4
£72 10s. or over	3
	178

$V_1 = \cdot 07$, $V_2 = \cdot 18$.

The variations in annual earnings were not solely due to uniform skill or luck, for from pay to pay an individual's receipts varied considerably. The earnings of six individuals have been analysed for twenty-six pays. These were selected from the 178 regular men, as follows: A was one-tenth up the scale of annual earnings, B, C, D and E were respectively one-quarter, one-half, three-quarters, and nine-tenths up the scale, and F made the greatest sum in the year:

TABLE D.

	A.	B.	C.	D.	E.	F.
Lowest earnings...	£1·03	£1·35	£ ·77	£1·47	£1·31	£1·91
Lower quartile ...	1·37	1·67	1·81	1·90	2·02	2·45
Median	1·52	1·85	2·02	2·06	2·29	3·05
Upper quartile ...	1·67	1·99	2·48	2·37	2·53	3·29
Highest earnings..	2·47	2·54	2·76	2·98	3·08	4·12
Average ...	1·57	1·87	2·02	2·17	2·29	2·91

7. We get another view of the variation from man to man as follows: If we take the 252 hewers or putters whose names appear on the pay-sheets at any time during the twelve months we can show the average earnings per shift of each of them (except five), and also the average earnings per pay.

TABLE E.

Average earnings per shift.	Number of men.
2s. —	3
2s. 6d.—	3
3s. —	11
3s. 6d.—	33
4s. —	65
4s. 6d.—	82
5s. —	34
5s. 6d.—	10
6s. —	2
6s. 6d. or more	4
	247

Median 4s. 7d. $V_1 = \cdot 08$, $V_2 = \cdot 19$.

Average earnings per pay.	Number of men.
Under 10s.	5
10s. and under £1	7
£1 —	4
£1 5s. —	18
£1 10s.—	37
£1 15s.—	68
£2 —	85
£2 5s. —	17
£2 10s.—	7
£2 15s.—	3
£3 or more	1
	252

Median £1 19s. $V_1 = \cdot 12$, $V_2 = \cdot 23$.

8. From these tables we may learn that the men regularly employed in 1884-5 put in nearly as many shifts as possible in the year (Table B), that their annual earnings were considerably dispersed (Table C), one-fifth of them earning as much as 18 per cent. more or less than the median, and that their fortnightly earnings varied greatly. The earnings per shift, even when all worked by two men in a fortnight are merged together (Table A), varied from under 2s. to over 8s. This variation appears to depend to a considerable extent on the skill or energy of individuals; since not only (Table D) an individual's earnings varied from pay to pay in the year, but also when the whole year is averaged (Table E) the divergence from man to man is very marked. The statement that the nominal daily rate of hewers in Durham was 4s. 6d., though applicable to the general average, is very far from indicating what an individual will earn in a fortnight, or what he will average in a year.

The French Minimum Wage Act of 1915

By Mrs. E. M. Burns.

As in most other countries the movement in France in favour of a legal minimum wage is comparatively recent. Since the early years of this century a campaign has been conducted with varying intensity to put an end to the disgraceful conditions in which it was alleged that homework, especially in the clothing trade, was carried on. In 1905 the Ministre du Travail instituted an inquiry into the condition of homeworkers. The first of the five volumes dealing with the lingerie trade appeared in 1907,[1] and was followed by the other four in 1909 and 1911, while those dealing with artificial flowers and the shoe trades appeared in 1913 and 1914 respectively. Certainly the conditions disclosed were disquieting. In the lingerie trade 60 per cent. of the workers who replied to the inquiry were getting less than 16 centimes per hour (1.6 francs for a 10-hour day), while in some departments the conditions were even worse, in Allier, Cher, and Loir and Cher, 80 per cent. of the workers receiving less than 10 centimes an hour, and in isolated districts the proportion of workers receiving only 5 centimes an hour was as high as 60 per cent. (e.g., Commentry). Nor were conditions much better in the artificial flower trade. Here the position was complicated by systematic short time during part of the year and excessively long hours in the "season." In Lyons 48 per cent. of the workers worked 11 to 16 hours a day: in Paris, 38 per cent. worked 11 to 18 hours.

In the light of these disclosures it is not surprising that the movement for reform should have advanced rapidly after 1910. In 1909, the year in which the first British Trade Boards Act was passed, Count de Mun attempted to introduce legislation to fix minimum wages in homework trades, and the matter was considered by the Conseil Supérieur du Travail. The result of the deliberations of the Permanent Committee was embodied in the Honoré Report of 1910. The committee was not unfriendly to the idea of the minimum wage, but desired to limit much more closely than de Mun the scope of the suggested legislation. De Mun returned to the charge in June, 1910, making use of the report of the inquiry into lingerie conditions and urging the passage of a Bill to set up professional committees to fix minimum wages for all industries employing homeworkers.

[1] *Enquête sur le travail à domicile dans la lingerie. Ministère du Travail et de la Prévoyance sociale.* Paris. 1907.

The Bill seems to have been well drafted, but nothing was done, and later in the same month Monsieur Engerand introduced a Bill which merely insisted upon the keeping of records of wages paid, such records to be open to inspection. Meanwhile the Honoré Report was being considered and on November 3rd, 1911, the Government adopted the project recommended by the Conseil Supérieur du Travail. Further delays ensued, and it was not until November 13th, 1913, that the Bill was passed by the Chamber of Deputies. A Commission was appointed by the Senate to consider it and its recommendations were embodied in the excellent report under the name of Monsieur J. Morel on March 30th, 1914. While agreeing with the Chamber of Deputies' Bill in principle, several administrative amendments were suggested. In particular, the functions of the wages committees were more clearly defined. The Bill finally became law on July 10th, 1915.

It should be noted that the struggle for the minimum wage was not carried on in Parliament alone. In 1911 the Committee of the International Institute for the Diffusion of Social Experiments had decided to agitate in France, Germany, and Austria for the regulation of homework. To further this object Monsieur R. Broda published, in 1912, a small book dealing with the experience of England, Australia, and Canada, and suggesting similar legislation for France.[1] The campaign was also assisted by the publication of ponderous volumes by Messieurs Boyval[2] and Raynaud[3] dealing with other aspects of the problem. Public interest in the matter was shown by the formation of various Consumers' Leagues, and an attempt was even made by Monsieur Lefebure, a Paris lace manufacturer, to secure agreement among employers for the payment of better wages.

The Act of 1915[4] applies only to women workers, though men, who receive less than the minimum fixed for women, may claim such minimum before the Conseil de Prud'hommes or a Juge de Paix (33*m*).[5] In the first instance the Act only affected homeworkers engaged in the manufacture of clothing, hats, shoes, lingerie of all kinds, embroidery, lace, feathers, artificial flowers, and all other work relating to clothing (33). Its operation was considerably restricted by a decision of the Court of Cassation in June, 1918, limiting its applicability to persons engaged in making articles enumerated in section 33, *which were ultimately intended for clothing*.

Fortunately, under section 33*m*, it was possible, on the recommendation of the Conseil Supérieur du Travail, and by means of a public administrative regulation, to extend the scope of the Act. A

[1] R. Broda, *La Fixation légale des salaires*. 1912.
[2] P. Boyval, *La Lutte contre le sweating system*. 1912.
[3] B. Raynaud, *Vers le Salaire Minimum*. 1913.
[4] *Loi du* 10 *Juillet*, 1915, *portant modification des titres III et V du Livre Premier du Code du Travail et de la Prévoyance sociale*.
[5] The figures in brackets refer to the relevant sections of the Act.

report[1] was recently presented to the President by the Conseil urging an extension, first, to all lace sewing, embroidery, etc., whatever the destination of the work, and, second, to certain accessory articles of clothing and certain knitted goods, medals, small jewellery and rosaries.

A Decree of August 10th, 1922, carried out all these recommendations, except that work on finishing meshed cloth (*tissus à mailles*) was excluded when the worker was employed directly and without intermediary by the employer himself. For it was argued that such work was part of the trade concerned and not homework proper.[2] An unsuccessful attempt to extend the provisions of the Act to workers in workshops was made in June, 1917, by Monsieur Chassaing. The Bill was sent to the Conseil du Travail and nothing more seems to have been heard of it.[3]

The authorities charged with the fixing of rates were, in the first place, intended to be the Conseils du Travail set up under the Act of July 17th, 1908.[4] In fact, only three such councils existed, none of which dealt with the clothing trade.[5] In their absence the authority was to be a Comité de Salaires, to be set up in the chief town of each department (33*f*). These committees were to consist of the senior Juge de Paix, and two to four workers engaged in the trade, though not necessarily homeworkers, and the same number of employers. The term of appointment was three years. The Prefects have the duty of summoning the committees and of determining the number of members, who are actually chosen by the assembled presidents and vice-presidents of the local Conseil de Prud'hommes and, failing these, by the President of the Civil Tribunal. The Conseils de Prud'hommes, as reorganized by the Acts of 1907 and 1908, are set up for industrial towns, and consist of as many trade sections as are required. Each is composed of two employers and two workers with a president chosen alternately from either side. They deal with trade disputes, wages and dismissal claims, and combine the functions of a court of arbitration with those of a summary court of jurisdiction.

It is the duty of the Comité de Salaires to fix the hourly rate which is to be paid for the various kinds of homework carried on in the district, and the Act lays down very carefully the matters to be taken into consideration by the Comité when making a decision. According to section 33*e* the wage fixed must be equal to the wage customarily paid in the district to workers of average ability engaged on similar work in factories and workshops. Where only homework exists

[1] *Bulletin du Ministère du Travail*, September, 1922.
[2] Circular of the Ministre du Travail, September 11th, 1922.
[3] *Doc. parl.*, no. 3485, J.O., p. 893.
[4] These may be appointed by the Council of State on the request of persons interested or by official initiative, in any locality for particular trades to study the interests of the trade and give expert advice.
[5] *Rapport Morel, Senat*, 1914. *Session Ordinaire, Doc. Parl.*, no. 207.

in the district, the committees must take as a basis the wage paid for similar work in the same, or neighbouring, district. Where such comparisons cannot be made, it is provided that the basis shall be the average daily wage paid in the district to workers " non specialisées, allant en journée chez autrui pour des fins diverses, travaux de ménage, de couture, de ravaudage, de blanchissage, etc."[1]

In addition to the Comités de Salaires, section 33*g* of the Act gives the Prefect power to set up Comités d'Expertise for the various branches of trade or for various localities. These consist of two women workers and two employers in the trade concerned, and are presided over by the local Juge de Paix. Here, again, the members are chosen by the assembled sectional officers of the Conseil de Prud'hommes. After the Comité de Salaires has fixed the daily wage to be paid in the district, it is the duty of the Committee of Experts to discover the length of time necessary to make various articles in order that piece rates may be fixed which will allow the ordinary worker to earn the minimum hourly or weekly rate. The Committees of Experts need only function at the request of the Government, the probiviral courts, or a trade association, but, if they wish, they may, on their own initiative, draw up the necessary tables showing the time taken to make various articles. In this somewhat difficult task they are entitled to receive assistance from various quarters. They have access, for instance, to the schedules of wages and piece rates in the clothing trade in various districts, which have been drawn up from time to time, as a result of the Decree of August, 1899, relating to the making of military garments,[2] and the Ministerial Circular of July 24th, 1915, instructs inspectors to attend the committee and give advice when requested. It is a further duty of the committee to give advice and information to the judicial authorities, when workers sue for the fixing of a rate applicable to themselves.

The decision as to the mimimum wage is to be published by the Prefect and is to become effective after three months unless an appeal is lodged. Appeals which are not settled by agreement are decided by a Central Commission sitting at the Ministry of Labour (33*h*). This is composed of two members of the Wages Committee concerned (one representing the employers and the other the employed), two representatives of the trade in question, and the permanent members of the Commission. The latter consist of two members elected from the probiviral courts for a term of three years and one member of the Court of Cassation, nominated by the Court, who acts as President. In practice, appeals to the Central Commission have been few. Up to October 1st, 1920, the Court had given only thirty-six decisions.[3] The general tendency seems to have been

[1] Words of M. Jean Morel, quoted in the Ministerial Circular of July 24th, 1915.

[2] Circular of January 12th, 1917.

[3] *Bulletin du Ministère du Travail*, October, 1920.

to obtain a settlement either by reconsideration or by employing the inspectors as conciliators. The proceedings of the Commission seem to be marked by considerable delay. Thus on July 10th, 1917, it issued a decision upon a rate first fixed by the Committee of Haute Loire on July 4th, 1916; on December 8th, 1916, it decided a rate fixed by the Saône and Loire Committee in March of that year, while a rate for lacemaking, which had been originally fixed in Haute Savoie in June, 1916, was not put into operation until November, 1917, when the Commission decided that the rate should be 2.60 francs per ten-hour day, instead of 3 francs, in spite of a steady rise in the cost of living during the interval. Apparently the functions of the Commission are not unlimited, for it has itself stated that it has no power to determine whether workers for whom rates are fixed are, in fact, homeworkers within the meaning of the Act,[1] or whether a Committee of Experts has been properly constituted.[2] To avoid deliberate delays by abuse of the machinery of appeal, a Ministerial Circular of September 3rd, 1917, has laid it down that the decision of the Commission is final and that no further three months period for appeals will be allowed.

By October, 1920, Comités de Salaires had been set up in all departments except Aisne and Ardennes, while there were 297 Committees of Experts in existence. The setting up of the committees did not, however, proceed as quickly as might have been wished, as is shown by a number of Ministerial Circulars reminding Prefects of their duties under the Act. In July, 1915, the Minister directed a circular to all Prefects and divisional Inspectors of Labour, setting out in the most lucid manner the objects and provisions of the Act and urging the immediate setting up of the necessary committees, and the matter is again referred to by circulars in September and October of that year. In February, 1916, we find the Minister again sending urgent instructions, and complaining that the delay in fixing rates in certain departments is leading to the displacement of labour, and as late as 1920 we find complaints that in many cases the Committee of Experts is not yet functioning.

Enforcement of the Act is entrusted to the Inspectors of Labour and, to facilitate investigation, employers must keep a register of work given out, together with the name and address of the worker and the rate of wages paid, while the notice setting out the legal rate must be posted where the work is given out (33*b*). The extent to which infractions of the Act have been discovered, and the amount of inspection carried out, can be seen from the following table, which has been compiled from the annual reports on the Act published in the *Bulletin du Ministère du Travail.*

[1] *Bulletin*, October, 1917.
[2] Decisions of the Commission, April 15th, 1918, and March 9th, 1916.

Year.	No. of firms affected.	No. of workers affected.	No. of visits paid including revisits.	Not sending notice or keeping register (s. 33*a*).	Failure to post notice of rates (s. 33*b*).	Failure to enter price or keep books correctly (s. 33*c*).	Paying a wage different from that stated (s. 33*c*).
1916	5,053	208,318	7,515	95	55	2,017	614
1917	6,196	215,218	4,510	165	21	350	21
1918	5,072	160,902	3,472	270	21	1,008	36
1919	5,796	128,481	1,846	14	9	643	107

Differing in these respects from the British system, the work of inspectors is completed when they have secured the observance of sections 33*a*, *b*, and *c*, relating to the keeping of records and the posting of notices, and where underpayment is discovered they can merely inform the employer of his obligations.[1] The obtaining of redress is left to the workers themselves. The balance of wages due is recoverable if claimed within fifteen days, except when the Committee of Experts has not fixed a time for making an article, when, after the complaint of a worker others may claim any time after the underpayment. The principle of leaving it to the worker to claim arrears seems to be very unsatisfactory, especially in a group of trades where the majority of workers are women scattered over wide areas. The chances of intimidation seem great, and it can only be said in extenuation that this method is consistent with the French view of legal rights. In France it is the right of the worker to claim the minimum wage ; in Great Britain it is the duty of the employer not to pay less. At first, attempts were made by the trade unions to take up cases for their members, and claim arrears, but a decision of the Court of Cassation[2] made it clear that unions could only take up a case to procure an award (i.e., to obtain a statement that a certain wage should be paid) in favour of a particular worker, but could not take proceedings to recover the wage due. Contraventions of sections 33*a*, *b*, and *c*, are punishable, before a Tribunal of Simple Police, by a fine of 5 to 15 francs, while in respect of each person underpaid the fine may be as much as 500 francs. Second infractions render offenders liable to heavier fines, culminating in a total of 3,000 francs.

Such are the institutions called into being by the Act of 1915, in order to remedy the unsatisfactory conditions prevailing in the homework industries. It remains to inquire how far they have effected their purpose.

In the first place, it must be noted that the aim of the legislature was definitely limited. Its object was merely to bring the wages

[1] Circular, July 24th, 1915.
[2] Baillie and Company Case, April 19th, 1918.

paid for homework up to the level of those paid in factories or workshops, and no attempt was made to question the adequacy of the latter. It is here that the French minimum wage legislation differs most widely from the British and Australasian, where the aim has been a much wider one, and, in the case of Australia, is definitely a "living wage." In France all attempts to interpret more liberally the functions of the Wages Committees have been disallowed on appeal to the Central Commission. In order more firmly to impress this narrow basis upon the committees the Minister of Labour, in a circular of January 12th, 1917, pointed out that the "customary wage" of the district "devra servir de base unique, abstraction faite de toute autre considération à la détermination du salaire minimum que doit gagner une ouvrière travaillant à domicile pour une journée de dix heures," while the Commission Centrale on April 26th and 27th, 1917, ruled that the law gives no power to a departmental committee, nor to itself, to determine whether the wage is sufficient or insufficient, taking into consideration *le salaire vital*. In spite of this the Seine Department in October, 1917, decided to add to the minimum which it had established a percentage corresponding to the daily price of 1 franc for 10 hours to compensate for the increased cost of living,[1] while the Haute Savoie Committee avoided the difficulty by declaring that as the "customary wage" had depreciated on account of the increased cost of living, it would raise the wages it had fixed to correspond.[2] It was not, however, able to maintain that the current rate for hosiery was at that level, and as a result the rate for that branch of the trade was lowered on appeal to the Commission. Such attempts were, however, comparatively rare, and, as will be seen below, the general rule was for the committees to be very slow in revising a rate. It must also be pointed out that this strict limitation of the basis of the wage was not always in the employers' favour. The decisions of the Commission that the ability of an employer to compete with other firms on account of transport costs is not a matter to be taken into account,[3] and that the rates paid in neighbouring districts are not to be considered,[4] are cases in point.

The problem of the "ordinary worker" does not appear to have presented much difficulty, the circular of January 12th, 1917, suggesting the definition in the Berthod Report, "L'ouvrière qui n'a pas de talent spéciale lui donnant droit à une rétribution supérieure, mais celui de l'ouvrière ordinaire exécutant communément les divers travaux de la profession," following an earlier circular addressed to the divisional inspectors in 1916. When estimating the effect of the Wages Committees on the wage level, we must bear in mind the

[1] *Tarifs de Salaires et Conventions pendant la Guerre*, 1914-18. Paris, 1921.

[2] Decision of December 12th, 1916.

[3] Appeal against the Haute Savoie decision, February 11th, 1918.

[4] Decision of July 7th, 1919.

fact that the clothing trade was flourishing during the period under review on account of the heavy military demands and, in so far as goods for the army were supplied, came within the provisions of the Decree of 1899. In practice many special price schedules were drawn up which rendered the decisions of the Wages Committees largely inoperative. It must also be remembered that prices were steadily rising during the period under consideration.

The Act of 1915 had provided for a revision of the rates every three years at least, but it is clear from the Ministerial Circulars that it was hoped that the period would be more frequent, and if the committees were to be an effective force they should obviously have been ready to adjust wage rates to the changing economic conditions. Yet by the end of 1918 as many as forty departmental committees had made only one decision, while as late as 1920 it was reported that there were still fourteen committees which had not revised the legal rate since it was first fixed, and this in spite of repeated circulars from the Minister pointing out the dangers of transference of labour as a result of the passivity of the committees. Even when notifying the extension of the Act, the Minister in a circular dated September 11th, 1922, took the opportunity again to request the Prefects to summon committees for the revision of rates, especially if more than three years had elapsed since the last meeting.

As a result we find in 1920 minimum hourly rates as low as 18c. (hand lingerie in Corrèze), or 1.75c. (embroidery in Puy de Dôme, cap making in Rhône, etc.), while the normal legal hourly wage varied between 20 and 60 centimes, although in certain districts rates as high as 1.25 francs an hour were fixed. The higher rates, however, were usually found in the more thickly populated districts or in the neighbourhood of manufacturing areas,[1] and it is here that the committees meet most frequently for the revision of rates. The inelasticity of the rates fixed has in a few instances been compensated either by agreements made outside the committees between employers and trade unions, or as a result of the schedules of wages drawn up for workers engaged in the manufacture of military clothing. The report on Wage Scales and Agreements, published by the Ministère du Travail in 1921,[2] shows that considerable adjustment was made during the war, both as a result of the introduction of the *semaine anglaise* and in order to allow wages to keep pace with the rising cost of living. Unfortunately most of these schedules and agreements applied only to workers *en atelier*, and in the three volumes of the report it is only possible to find twelve districts,[3]

[1] e.g., the highest rates are found in the following districts : Seine, Orléans, St. Etienne, Marseilles, Saône et Loire, Oise.

[2] See note 1 on page 242.

[3] i.e., Bouches du Rhône, Drôme, Gard, Gironde, Ille et Vilaine (Rennes), Indre et Loire, Loir et Cher, Loire, Loire Inférieure, Morbihan, Rhône (Lyons), Savoie.

excluding the Paris area, in which the agreement or wage scale applies specifically to homeworkers.

From such facts as are available it seems possible to conclude that the French minimum wage system has not proved a striking success, though the recent extension of the Act to new trades tends to weaken this judgment. With few exceptions the Wages Committees have not been remarkable for initiative, and have needed to be stirred from the inactivity into which they fell after fixing the original minimum wage, by frequent Ministerial Circulars. A system whereby it is possible for a wage to remain fixed for as long as three years is unsatisfactory in normal times. In periods of rising prices and rapidly changing economic conditions it is useless as a means of rectifying the abuses which existed in the homework trades before the passage of the Act of 1915. It is at present impossible to use the French experiment as an argument for or against the legal minimum wage. The real test of the "success" of the experiment will come when prices begin to fall and unemployment in France becomes a real problem. Meanwhile one can only say that the French minimum wage law is neither sufficiently well administered, nor sufficiently bold in conception, to have much influence on wages in the low-paid homework industries.

Book Reviews

The British Coal-mining Industry during the War. By Sir R. A. S. Redmayne, K.C.B., M.Sc. London: Humphrey Milford. 1923. pp. xvi.+348.

Sir Richard Redmayne speaks on the coal industry with peculiar authority. An ex-manager and director of colliery companies, he has seen the problems of the industry from the inside, and as chief inspector of mines, technical adviser to the Coal Controller, and chairman of innumerable committees, he probably had more to do with the development of control during the war than any other single individual. As an account of the relations between the State and the coal industry from 1914 to 1921, his book is extremely valuable, for he is writing of matters *quorum pars magna fuit*. Its weaknesses are partly due to the nature of the material, partly to the method pursued—perhaps unavoidably—by the author. A chronological survey of events, especially when they were moving so rapidly, does not allow of the continuous treatment of any one problem, and the reader who desires a synthetic view must bring together for himself a number of scattered passages. Nor is it really possible to isolate the history of the coal industry during the war years from that of the generation which preceded it; important as they were, the ferment in it since the armistice has been as much the product of causes operating since the beginning of the century as of the period of control; and to detach the latter from their setting is to run the risk of stressing temporary as against permanent tendencies —a risk which the short historical introduction of the author does not wholly enable him to avoid. When all is said, however, the book is a reliable account of what was, after agriculture, the most vital of British industries during a critical period. As such it is not likely to be superseded.

Prior to 1914, it is understood, a committee of the Cabinet had prepared a "War-book" which was to be put into operation if war occurred. The impression of the reader who follows the steps by which the control of the coal industry developed—the central theme of Sir Richard's study—is that coal must have been omitted from it. The broad fact is that control was never "imposed" on the industry at all. A succession of specific problems arose—the shortage of workers (191,170 miners enlisted in the first seven months of the war and 250,750 in the first twelve), the rise in the retail price of household coal, the need of securing sufficient exports to allies and to neutrals who would supply us with necessaries, and of preventing

exports which might reach enemy countries, the shortage of materials, especially timber for pit-props, the question of distribution and transport, the desirability of economy in consumption, the maintenance of the maximum output with a deflated *personnel*, disputes between owners and workmen—and almost each produced a separate committee to handle it. When full " control " came in February, 1917, the change in the financial relations between the industry and the State was important, for standard profits were guaranteed for a standard output, and 95 per cent. of all profits above them were taken by the State, of which, however, 15 per cent. returned to the industry. But the freedom of the industry had already vanished. In view of the enormous profits shown by Sir Arthur Lowes Dickenson to have been made by coal owners in 1916 (a good deal more than double the average of the five years before the war), it seems unfortunate that financial control was not established sooner. Sir Richard Redmayne himself appears to have submitted a scheme for " control," including the control of profits, to the Home Secretary as early as September, 1915. His criticisms on that actually adopted (p. 92), appears, if I understand them rightly, to relate to the machinery, not to the principle.

While the plan of the book involved making the growth of control the main thread of the story, there are passages which, though sometimes in the nature of *obiter dicta*, throw flashes of light on the permanent problems of the industry. The absurd comparison of the output per man-shift in British and American collieries, which was perpetually cropping up in the Press between 1919-21, is dismissed with the contumely it deserves. The comparatively small proportion of the total output (about 15 per cent.) used for household consumption and the overwhelming importance of the industrial demand is shown in some interesting tables. The results of the inquiries of the Coal Conservation Committee into the possibility of more economical production and consumption of coal—ignored during the " crises " of the last few years, but much more important than them to posterity—are summarized. The author's own views as to the right method of dealing with the industry are set out on pp. 270-1. They are a summary of those which he submitted to the Coal Industry Commission. After the storm of criticism directed against them by mine-owners, he appears to be still unrepentant. " The economies of administration and working attainable under a system of aggregation must be patent to every broad-minded and inquiring student of the coal industry. Great economies could be achieved by a centralized system of purchasing of stores, and important and far-reaching economies could be secured by centralization of pumping and, to some extent, winding plants, and, further, underground haulage could be simplified and cheapened by the abolition of eccentric boundaries." These statements as to possible economies in production should be read with the statement of the Coal Conservation Committee (p. 175), that the possible saving on

consumption, by the adoption of a " national scheme of electrification," might be put at £100,000,000.

Whether such views are correct or not—and obviously " the aggregation of colliery interests" would present problems of its own—it is on this plane that the future of the industry should be discussed. The policy adopted in the past five years of refusing to consider the future of the industry and discussing its problems only when the relations between owners and miners produced a crisis, as though technical and scientific problems were non-existent or could be left to settle themselves, is not an intelligent one. The fundamental problem is to secure that a wasting asset is produced and consumed in the most economical manner, and particular interests, whether of mineral owners, mine owners or miners, should be treated as subordinate to that primary consideration.

R. H. TAWNEY.

The Third Winter of Unemployment. The Report of an Inquiry undertaken in the autumn of 1922. By Major the Hon. J. J. ASTOR, M.P., Professor A. L. BOWLEY, Professor HENRY CLAY, ROBERT GRANT, W. T. LAYTON, P. J. PYBUS, B. SEEBOHM ROWNTREE, Lt.-Colonel GEORGE SCHUSTER, F. D. STUART. London: P. S. King and Son, Ltd. 1922. pp. viii.+350.

An Introduction to the Study of Labour Problems. By GORDON S. WATKINS. London: George G. Harrap and Co. Ltd. pp. xvi.+664.

British and Continental Labour Policy. By B. G. de MONTGOMERY. London: Kegan Paul, Trench, Trübner and Co. Ltd. 1922. pp. xxvii.+575.

It must have been a sad day for the *Daily Mail* when the *Third Winter of Unemployment* was published! Until that time there had been no reliable study both of the distribution of unemployment among trades, places and persons, and of the social effects of enforced idleness, and it had been possible to talk of " the demoralization of the dole," without fear of contradiction. In future any study of the effect of unemployment will have to take account of this book, which consists of a series of reports by very competent investigators under the supervision of a committee who rightly describe themselves as " persons of diverse economic experience and differing political opinions," and of the comments and conclusions of that committee. The book as a whole is disheartening to read. It is a story of industrial paralysis and waste (" altogether about one-fifth, or rather more of the national labour power, other than agriculture, was running to waste ") ; of dull misery and suffering ; of repeated and fruitless efforts to find work ; of dwindling savings and more constant visits to the pawnshops ; of inadequate though well meant Government attempts to enable people to " carry on." Perhaps the most disheartening thought of all is that it was not generally realized that something more than a means of carrying on was

needed, and that the trouble was not one that would solve itself in time. Indeed, if one has any complaint to make against this book, it is that the authors have not sufficiently stressed this point.

Some extremely important facts emerge from this inquiry. The first is that the dole does not necessarily demoralize and that in fact there is a very keen desire among the majority of the unemployed to obtain almost any kind of work. The inquiry also confirms one's suspicions that the real burden and suffering of unemployment is borne by the skilled artisan and tradesman and the lower grades of the salaried class, while in many cases the general state of health and feeding among the normally low paid and irregularly employed is better than in times of good trade. This is a striking comment on average wages and their apportionment between food and other expenditure. Further facts brought into prominence by the report are the abnormal twist given to industry as a result of the war, and the present heavy concentration of unemployment in certain areas.

It is easy to forget that unemployment is only one out of many industrial problems awaiting solution, and we are grateful to Professor Watkins and Mr. de Montgomery for attempting to give us a sense of proportion in this matter. To present a synthetic account of all the main problems of modern industry is a difficult and must always be an ungrateful task, since critics will be apt to bring the charge of a lack of perspective and to stress omissions.

Nevertheless one feels that Professor Watkins would have done well to revise his book a little more before publication, for it appears to have been rather hurriedly written. He states that his object is " to contribute something to a broader understanding of the serious problems of labour and capital," his chief concern being to " analyse and describe those maladjustments in industry which impede industrial and social progress." He accordingly discusses such topics as unemployment, immigration, employers' and workers' associations, the minimum wage, socialism, etc., and prefaces his treatment with a theoretical analysis of the problems involved. This analysis, however, is inferior to that contained in Commons' and Andrews' *Principles of Labour Legislation.*

It is stated on the cover that special attention is given to the United States and England, but the references to English conditions are too few and widely scattered to make the book of any use to the student of English labour problems. In a chapter on Employers' Associations, for instance, there is no reference at all to the Federation of British Industries. As an account of American labour problems the book will be found to contain a good deal of descriptive matter in a useful form. But Professor Watkins sometimes falls into unscientific and loose expressions. The statement that " the increase in married women in industry during the war was said to be *excessive* " (my italics) is meaningless without further explanation. Again, one's desire for accurate information is not satisfied by being told that " in the United States in April, 1922, *millions* of workers

were employed only half-time" (p. 216), that "it has been estimated that in all probability there are several *millions* of American workers who are not attached definitely to any particular locality" (p. 231), or that "the transport of migratory workers is a serious problem: *millions* of them steal rides on railways" (p. 233). In a book covering such wide ground it is scarcely surprising that there should be slips, but in a revised edition it might be noted that there is no legal prohibition in England against public employees joining trade unions, and that it is hardly correct to include the School of Economics under the heading of labour organizations and other institutions doing progressive work among the working classes.

Mr. de Montgomery sets out with different aims but in part covers the same ground. He uses the term "Labour policy" in a very wide sense, and deals not only with the published and declared economic policy of labour organizations in Great Britain, France, and the Scandinavian countries, but also with the actual policy adopted by the Governments of the countries concerned, and it is here that he approaches Professor Watkins' field of study. Mr. de Montgomery has evidently worked hard in collecting the information which he presents in this book, which affords a useful basis for a comparison of the labour movements in the countries referred to. But his book is, to a large extent, a mere recital of policies and lacks the interest that would be given by more "inside information" regarding the cross-currents of opinion within the labour organizations themselves. It must also be admitted that Mr. de Montgomery as a compiler of other people's theories is better than Mr. de Montgomery as a theorist. His own standpoint is marked by a somewhat facile optimism, which may be illustrated by the following *obiter dicta:* "It is characteristic of the present social system in Great Britain that there is no real difficulty for any man or woman of ability, of however humble an origin, to rise from one social class to another" (p. 286). "No doubt it is only a question of time till the Socialists in all countries will be obliged to recognize, firstly, that privately owned capital is indispensable for high efficiency of production . . . and, secondly, that adequate representation of the workers in Parliament will safeguard sufficiently the interests of the workers, even under a system of private ownership and individual freedom" (p. 287); "when the workers once begin to realize that high efficiency in production and increased output are the only sure means by which a lasting improvement in their standard of living can be secured, *then there will be no limit to the industrial development of Great Britain*" (p. 163—my italics). After this we are not surprised to find that the author regards the Cave Report on Trade Boards as "without exaggeration . . . one of the most weighty and sound reports relating to Labour that has been issued during recent years" (p. 368), or that he thinks it unlikely that the wages of agricultural and general workers "will ever be forced back to their extremely low pre-war level" (p. 156).

E. M. Burns.

Restoration of the World's Currencies. By R. A. LEHFELDT. London: P. S. King and Son Ltd. 1923. pp. xi.+146.

Currency and Credit before and since 1914. By HUBERT BLAKE. London: Effingham Wilson. pp. viii.+91.

Prof. Lehfeldt is best known as the author of the scheme for the regulation of the value of gold by conscious control of the gold output, though the scheme which he proposes would seem to involve governmental interference, and thus to introduce that very element of government meddling with currency, to which, on general grounds, he is so averse. Why not leave "restriction of output" to the play of self-interest? It is true that gold producers have recently shown themselves so ignorant of their own business as to support measures which keep down the value of their produce, but if, by the restoration of the gold standard, mining costs fall, producers may be trusted to learn the lesson. At any rate, the important point *is* to restore the gold standard, and Prof. Lehfeldt's book is, in fact, mainly an apology for the gold standard. He thinks, perhaps rather optimistically, "that the prestige of gold in the world at large is higher than before, so disastrous has the use of paper substitutes been." However that may be, Prof. Lehfeldt is very moderate in his views: wealthy countries, such as America and the like, should let people use gold or paper as they like; countries like France should use the gold exchange standard; whilst in Russia (and, of course, Germany), "Government should base its action on sheer necessity, repudiate the lot and make a fresh start—but not with the printing press." How rapidly things change is seen from the illustrations used by the author—the sentence just quoted is applied specifically to Austria; the German exchange was 1,000-2,000 to the £!

Prof. Lehfeldt believes that the value of gold is likely to fall in the long run, but "there will be a long enough interval—at least a decade—before appreciation becomes a danger to be guarded against." A decade is not a very long time in the history of the world—and if the appreciation of gold were likely to be very great in the next fifty years, there might be a case against the restoration of the gold standard. But in view of the likelihood that Central Banks will carry on their business with smaller reserves than before the war, that much gold is likely to come out of hoards, and that poverty in Europe will keep the industrial demand down, not to speak of the fact that increased banking habits and considerations of convenience will also reduce the demand, it is rather unnecessary to worry about an appreciation of gold just yet. Prof. Lehfeldt neatly disposes of the view that a policy of encouraging rising prices is a good thing for business; of course, as he points out, if it is known that prices will go on rising, creditors will allow for the fact. Altogether, if there is nothing sensationally new in this book, it puts the case for gold persuasively and well.

Mr. Blake's little book—apart from an unsatisfactory first chapter on "Elements of Monetary Theory"—is simply a summary of

recent financial facts and of conventional theory, presented in quite a readable way. The old Cunliffe theory of bank-credit inflation *causing* currency inflation is trotted out again, in spite of the fact that on the very next pages (pp. 42-3) it is shown that the sale of currency notes for Bank of England balances and the deposit of securities in the Currency Note Account in place of these balances, " provided the Treasury with another source of revenue." If this is not a clear statement that the volume of currency notes depended on how much the Treasury thought desirable, it is only that Mr. Blake is taken in by the incantations thought necessary officially. Incidentally, this procedure by the Treasury disproves the assertion on p. 80 that Ways and Means Advances from Government departments do not exercise an inflationary influence. So long as the Treasury does not borrow from the Currency Note Account, they do not ; but the assumption that when the Government borrows £10 millions, say, from the Bank of England, there is inflation to the same extent, is quite unwarrantable. Mr. Blake holds the view that it was " the great decline in trade " which " killed the policy of deflation." It certainly has not prevented the fiduciary limit from falling ; if the author thinks trade depression has made deflation unpopular, he should say so plainly—and even then he would only be partly right. He quotes Mr. Goodenough's rather absurd view that the Cunliffe policy " would be practicable on a full tide of prosperity," as if the post-war boom had not been the biggest in commercial history. Besides, what *is* a " full tide of prosperity ? " On p. 70 we are told that " a considerable degree of stability must *precede* the restoration of the gold standard." The argument is that if the gold standard is not restored more or less simultaneously all round, " very serious disturbances in credit and prices might result from paper-ridden countries " sending " large portions of their stocks of gold against commodities." But the danger of disturbance on a large scale would be less, the larger the number of gold-standard countries, and, in any case, such countries could retire notes as the gold came in ; until the new supplies exceeded the old volume of paper, prices would not be affected. Incidentally, the ruin of the paper mark makes it quite likely that gold will flow to the Continent rather than away from it, within a relatively short time. In any case, to wait for " some plan based upon an agreed purpose . . . by the nations of the world " is perfectly hopeless. The only thing left to do is to put one's own house in order, in the expectation that sooner or later others will do the same. T. E. GREGORY.

Trade, Transport and Finance. By G. MAIRET. London : Macmillan and Co. 1923. pp. vi.+444.

Banking and Currency. By ERNEST SYKES. London : Butterworth and Co. 1923. pp. xiv.+304. 5th edn.

Writers of introductory texts find it difficult to avoid the temptation of stuffing their books with too much detail, forgetting that even

some " practical " problems are too advanced for the type of reader their works are intended to assist. Mr. Mairet's book is a case in point. Some of the material furnished, particularly that dealing with wholesale markets, is quite admirable, but one would have preferred to see much less detail and a much clearer explanation of the economic principles determining commercial and financial structure. Though the chapters dealing with trade and transport seem on the whole satisfactory, the same cannot be said of the financial chapters, where Mr. Mairet seems to lack first-hand knowledge, and where the theory, as well as some of the facts stated, leaves a good deal to be desired. Thus, on p. 141, " the issue of currency notes was not, as is too often imagined, a ruse on the part of Government to make revenue! " (Exclamation mark, the author's.) This, of course, is the current legend, and is the exact opposite of the truth. On p. 142, " the Government, by incurring a floating debt of just over £1,000,000, provided the public with means, in the shape of expanded bank-credits, of subscribing to war loans amounting to no less than £8,000,000." This is surely carrying even current doctrine to an absurdity! The old Balance of Trade doctrine is, of course, produced again : the absurd policy of locking up gold in central reserves instead of selling it all abroad is euphemistically called " gold being withdrawn to enable the Government to use it in the best interests of the nation " (p. 143). On p. 89, in discussing the period 1797-1821, not a word is said about the Resumption Act ; in speaking of the Bank Charter Act of 1833 it is said that, as a consequence of that Act, " the largest banks of the present day " were founded ; none of the three banks mentioned now exist as independent concerns, the London Joint Stock never being rightly so called. On p. 130 it is said that the bank-rate applies to short loans from the Bank of England, whilst it in fact applies only to discounts. Altogether these sections are most unsatisfactory.

Mr. Sykes' treatment of the resumption of cash payments is also misleading, since he gives no account of the legislative policy involved, but he has mastered the difficult art of writing an introductory book on his subject, and on the whole his book deserves the blessing Mr. Steele bestows upon it in an introduction, and the success it has evidently obtained. At any rate, Mr. Sykes subordinates details and is not afraid of theory, though to consider bills, cheques, postal orders, as well as notes, as " money," seems to be going rather too far. The author finishes up by a plea for the gold standard, and sees quite clearly that when we return to the gold standard there must be " organized opportunities for concerted action between the Bank of England and the other great banks with the object of protecting the gold reserve." The chapters on Bimetallism are perhaps unnecessary, and might have been replaced by something else—say, a discussion of what happened at the Brussels and Genoa Conferences ; whilst the chapters on the Foreign Exchanges treat the new theory of purchasing power parity rather

too jejunely. But, in general, there is little to cavil at, and a good deal to praise. T. E. GREGORY.

An Academic Study of Some Money Market and other Statistics. By E. C. PEAKE. London: P. S. King and Son Ltd. 1923. pp. vii.+63. 6s.

> " If I could have given your Lordship any choice *excerptions* out of the *Greek* or *Latin* Learning, I should (according to our *English Proverb*) thereby but carry coals to *Newcastle* and but give your Lordship *Puddle-Water*, who, by your own eminent *knowledge* in those learned *Languages*, can drink out of the very *Fountains* yourself."[1]

So wrote John Graunt in presenting his Observations upon the Bills of Mortality. One could wish that Mr. Peake had been as modestly wise in choosing the kind of thing about which he was best fitted to make a book. Whatever that may be—perhaps the Greek or Latin learning unattempted by Graunt—it is assuredly not applied statistics into which field he chooses to follow Graunt. As a study in applied statistics, Mr. Peake's book is statistical puddle-water.

Mr. Peake begins with an admirable statement of purpose, " (*a*) to measure the effects of laws which have been arrived at either by the deductive method or by experience; (*b*) to increase our knowledge of economic laws by the inductive method, a method which, considering the amount of statistical material available, has obtained surprisingly few followers."[2]

He then proceeds to a general application of the method of correlation to various money rates in the London market, to the margins between those rates and to their rise or fall in succeeding intervals of time. These in turn he correlates with particular money rates in Paris and in New York, and with the rates of exchange as between London and Paris, and London and New York. He examines relationships both on a yearly basis and for particular months of the year, using as data the yearly and monthly averages of quotations as of one day early in each month over the period 1880-1914. From the correlations obtained, he attempts in several cases an exact numerical calculation of changes to be expected during given intervals of time in certain rates, for unit changes in certain other rates or in margins between such rates. In virtually all cases, he compares what he considers to be the implications of the correlations obtained, with familiar presumptions based on a priori reasoning or on every-day experience.

If Mr. Peake had understood the devices which he employs, the cause of the inductive method in economics which he champions, might have been well served. As it is, the method, which he com-

[1] *Epistle Dedicatory, Observations upon the Bills of Mortality*, by Capt. John Graunt.

[2] Introduction, p. viii.

plains has obtained surprisingly few followers, would perhaps be better for having one follower the less.

The formulæ which Mr. Peake actually uses are not given by him. It was only by recomputing certain of the coefficients of correlation which he obtains that it was discovered that the calculations[1] are apparently all made according to the simple equation :

$$\text{A.} \quad r_{xy} = \frac{\Sigma(x-\bar{x})(y-\bar{y})}{N\sigma_x\sigma_y}$$

Unfortunately, in one set of instances the formula is entirely inapplicable as a basis for the conclusions drawn. In another set of instances it is of doubtful application. And in a final set of instances, while the formula may be applicable, the results obtained by it are meaningless without supplementary tests.

An example of the first set of instances may be found in Table VII (p. 16). Here the difference between two rates is correlated with each of the rates respectively. Since, by its very nature, the difference is a linear function of the two rates, its relationship with either can only be determined by taking into consideration and allowing for the effect of the other. The relevant formula, therefore, is the coefficient of partial correlation of the form

$$\text{B.} \quad P_{zx.y} = \frac{r_{zx} - r_{zy}r_{xy}}{\sqrt{(1-r_{xy}^2)(1-r_{zy}^2)}} \text{ where } z = y-x \text{ or } x-y$$

which is symmetrical with respect to x and y. This formula reduces to formula A only under conditions which may be seen from Mr. Peake's coefficients not to be fulfilled in the present problem, namely, that both r_{xy} and r_{zy} equal zero.

Now the correlation of the difference with the two rates, being completely determined by them, must be unity.[2] Hence, from the relationships obtaining between coefficients of multiple and partial correlation, the correlation of the difference with either rate will only differ from unity by much or little according as the correlation between the rates themselves (r_{xy}) is low or high respectively. If the test be made with the data for February (Table VII and Appendix),

[1] Except in Chapter V.

[2] This may be shown algebraically for the case under consideration, as follows. By the method of moments

$$r_{zx} = \frac{-\sigma_x^2 + r_{xy}\,\sigma_x\,\sigma_y}{\sigma_x\,\sigma_z} = \frac{-\sigma_x^2 + r_{xy}\,\sigma_x\,\sigma_y}{\sigma_x\sqrt{\sigma_x^2+\sigma_y^2-2r_{xy}\,\sigma_x\,\sigma_y}} \text{ where } z = y-x$$

Substituting this value in the ordinary formula for multiple correlation, it is seen that

$$R_{z.xy} = \sqrt{\frac{\sigma_x^2\,\sigma_y^2\,(\sigma_x^2+\sigma_y^2-2\,r_{xy}\,\sigma_x\,\sigma_y)\,(1-r_{xy}^2)}{\sigma_x^2\,\sigma_y^2\,(\sigma_x^2+\sigma_y^2-2\,r_{xy}\,\sigma_x\,\sigma_y)\,(1-r_{xy}^2)}} = 1,$$

numerator and denominator being identical. If the coefficient of multiple correlation is computed for the February data, it is found to be unity within the probable error of the data.

the correlation between the rates (r_{xy}) is found to be ·85, and applying formula B the true correlation of the difference with each rate ($P_{zx.y}$ and $P_{zy.x}$) is found to be above ·9 in both cases, being slightly higher with the floating rate than with the six months' rate. These high correlations are exactly such as are to be expected in view of the high correlation between the individual rates. Moreover, the signs of the partial correlations must be of opposite character[1] since the items correlated are respectively a function of the form $\Phi(z,y)=y-x$ and each of the variables x and y. The above calculations for February bear this out, the correlation of the difference with the floating rate being negative, and that with the six months' rate being positive, or vice versa, according to the arbitrary choice of measurement of the difference as the excess over the one rate or the other.

Thus the coefficients given by Mr. Peake in Table VII are quite wrong as measures of the relationships which he has in view. The correlation between a linear function of two variables and either of the variables can only be determined, other things being equal; in this case the influence of the remaining variable being allowed for. Mr. Peake's coefficients by the method of their derivation do not make this allowance, and they therefore contain an element of spurious correlation.

The second set of instances, those where the formula employed by Mr. Peake is of doubtful application, may be illustrated by Table V (p. 12) and Table IX (p. 18). In these cases the difference between two rates is correlated with the average rise or fall of one of the rates over several months following or a single month respectively. In the latter case a function of two variables is being correlated with the first differences of one of the variables, and in the former case with a function of those first differences. The space of a review is not the place to examine what the form of the correlation may be under these conditions. But in the light of the amount of controversy which has taken place over difference correlations, and particularly in view of the point on alternation raised by Mr. Yule[2] and treated by Prof. Pearson,[3] the simple correlations obtained by Mr. Peake would seem to be of uncertain significance. Moreover, the argument preceding, relating to the first set of instances, is relevant here as well, although the consequences are probably less important. And it follows that if the coefficients of Tables V and IX are suspect, then the Tables for forecasting (p. 13 and p. 19), based on them respectively, are such that there is no light in them.

Finally, as to the third set of instances, those where the results obtained by the formula used by Mr. Peake seem to be meaningless without supplementary tests, virtually all the remaining tables of

[1] That is, unless the one or the other is zero, e.g., if one of the variables had the same value throughout, in which case the correlation with the other will be unity.

[2] *Journal, Royal Statistical Society*, June, 1921.

[3] *Biometrika*, March, 1923.

correlations in the book[1] may be cited. Mr. Peake does not in any instance compute the probable errors of his correlation coefficients. Since in all the tables under discussion, except Table XV, the coefficients are small (under ·5) and frequently very small (under ·1), and since the coefficients are based on only 32 or 33 items, the probable errors in practically all cases will be so large that the coefficient obtained is without significance as it stands. Even in Table XV, where the correlations are large and the probable error therefore smaller, the coefficients as they stand are not an exact basis for forecasting, to which end Mr. Peake utilizes them.

It is thus not surprising that throughout his book, Mr. Peake repeatedly finds conflict between the implications of his coefficients and existing presumptions in the matter of the phenomena he is investigating. It would be idle to examine his results, obtained by such faulty methods. And it would perhaps be adding the proverbial straw to complain of his original data on the ground that the rates as of one day each month are inadequate for purposes of correlation and forecasting.

Mr. Peake labels his work an *Academic* Study. But the author of a book, one concludes, like the manufacturer of tinned meats, is not always the happiest choice of person to certify the character of the product.

M. TAPPAN.

Statistical Method. By TRUMAN L. KELLEY, Ph.D., Professor of Education in Stanford University. New York: The Macmillan Company. 1923. pp. xii.+390. 18s.

New points of view in the treatment and use of mathematical statistics are welcome, and this book, which is principally directed to developing those methods which are used by "educators" and psychologists, will afford a good deal of matter for thought to critical statisticians, while it is important for those who wish to use modern methods of analysis in various fields. In spite of the existence of a number of textbooks in English, French, German and Italian, which treat the elements of mathematical statistics generally, there are few which bring to the surface so many of the special methods devised by the biometric and other groups. This treatise is not to be recommended as a first book on the subject; there are many which approach the mathematical measurements of facts more leisurely and lucidly; but it is of some importance for students who are already familiar with the elements of the subject and who wish to study its development. To follow the treatment, however, considerable mathematical aptitude is needed.

The author makes much more use of percentiles and of mean deviations than is customary. He introduces a new measurement of dispersion, namely the distance between the first and ninth deciles,

[1] e.g., XIII, p. 25; XV, p. 28; XVIII, p. 35; XIX, p. 36; XXI, p. 39.

which he shows has a specially small relative error[1]; this measurement the present writer has found of special use in wage statistics. On p. 91 he finds a case where the median is more accurate than the arithmetic average, an instance which should please Professor Edgeworth. On p. 100 he gives a very simple formula for the mean deviation of a truncated normal curve, and in the Appendix is a useful new table relating to normal percentiles.

There is little philosophical development of the subject or indeed any sustained argument to show why these numerous complicated formulæ should be applied to observations. We may grant that means and measures of dispersion evidently afford useful descriptions of groups; but what precisely is the meaning of the correlation coefficient, apart from its function of describing two-dimensional distribution? The author does not give any clear answer. To take a particular case: On p. 168 is a hypothetical cross-table showing the numbers of novices, apprentices, journeymen, and experts who are classified as dull, average and bright. It is sought to measure the correlation between trade-rating and mental ability. It is assumed that behind each grading is an undefined variate which is normally distributed, and each group is treated as if obtained by cutting out a section from a normal curve. After a complicated analysis, involving further but hidden assumptions, the coefficient of correlation is found to be ·4284, corrected by hazardous methods from a crude value ·34987. What is the validity of the assumptions and what the meaning of the answer? The author nowhere justifies the use of the normal curve, nor of the method of least squares which is also involved, though he continually uses them for approximation. He does not refer, except in the list of authors in the Appendix, to Edgeworth's analysis of the circumstances under which normal distribution will be found, and consequently hardly uses it in connection with the accuracy of averages where it may be properly applied. It is therefore surprising that he reduces most of the standard deviations obtained, which in fact have a definite meaning, to the misleading expression "probable error" by the use of the normal factor, merely stating (p. 98) that it generally has not its apparent meaning.

The reader of this book should proceed very cautiously, continually turning to the original papers in which new methods were developed, wherever the proof of a formula is not given, in order to find exactly what assumptions are made; and this is specially necessary when the vague measurements not uncommon in psychological investigations are concerned. He should also try to form a clear idea of what is meant by the standard deviation of a measurement based on a random sample before he tackles the later chapters, for the author gives him little help in this matter. He will then be rewarded by

[1] On p. 69 he speaks of an interpercentile range in the neighbourhood of this as having the minimal error of such ranges; he should have said the minimal *relative* error, that is the error divided by the magnitude.

making acquaintance with a number of methods and formulæ which, in careful and skilful hands, may yield valuable information.

As examples of the need of care it may be noted that in the improved formula 235 (p. 273) the left-hand term should be inverted and squared, corresponding to its use on p. 275, and that formula 30, p. 65, is incorrectly given, unless it is assumed that the average of the distribution is accurately known. A. L. BOWLEY.

Guide to Current Official Statistics. First issue (1922). Permanent Consultative Committee on Official Statistics. H.M. Stationery Office. 1s.

Prices and Price Indexes, 1918-22. Canada: Dominion Bureau of Statistics.

In ECONOMICA, No. 3 (p. 302), attention was called to the establishment of the Permanent Consultative Committee on Official Statistics, and its functions were described. The publication named above is the first public evidence of its activities. The opinion has been expressed that the public is not, in fact, aware of the existence of many useful statistics, with the implication that at least a great part of what is needed in fact already exists. With the help of this Guide this opinion can be weighed, and one result will certainly be to reveal a miscellaneous mass of information emanating from a great variety of departments. The very fact that seventy-six different Departments, Boards, Committees, etc., are listed as issuing publications containing statistics, emphasizes with the utmost clearness the need for some body which will bring together in some logical way the information relating to the nation's resources and activities as a whole. It may be hoped, or at least desired, that the Permanent Committee will use its own index to discover lacunæ and take what steps are possible to fill them, and also arrange for the publication of a year-book or a series of abstracts which will relieve the investigator from searching through the very large number of official papers to which this Guide refers him. Pending this result, this Guide (used in conjunction with a good library) will be of the greatest assistance to students and investigators. It consists of two parts, equally useful. The first shows publications arranged under the departments, etc., which issue them, so that, for example, we can at once see what is published by the Ministry of Health, and hope to find to what report we should turn to learn details of the working of the National Insurance (Health) Acts. The second gives an alphabetical list of subjects from which, for example, under the heading Old Age Pensions we ascertain that statistics relating to them are to be found in the publication numbered 305 in the first part, viz., the twelfth and thirteenth Reports of the Commissioners of Customs and Excise, these being the reports published in 1922.

The index does not give any detail of the contents of the publications, being limited in the interests of economy. It is certainly an advantage that it should be so small and handy, but in future issues

(since it will rapidly be out of date, periodic issue is essential) it should be enlarged so as to show what topics are included in the reports. Thus, in the example given above, there is nothing to show whether no. 718, *National Health Insurance Fund Accounts with Report*, does or does not contain statistics of the number of persons receiving benefits or relief, or any of the information relevant to the present controversy between the doctors and the approved societies.

No index can serve all purposes, and perhaps it is inevitable that if one wants the statistics of net emigration one should be referred to Migration and to Passenger Movement ; and that to find the number of sailors one must guess Shipping, thence be referred to Employment, and there find heading Shipping and sub-headings Engagement of Seamen and Persons. There will continue to be a great deal of the fascinating game of hunt the slipper for persons in search of information even when they have this excellent Guide.

The Canadian report on prices maintains the high level of goodness that is reached by the Bureau of Statistics. The wholesale prices are given not only in detail and as a general index-number, but also worked up into useful subsidiary indexes referring to groups of products. Cost of Living index-numbers are shown separately for nine provinces and eight cities. Index-numbers, wholesale and retail, compiled by a number of countries, are reproduced, and we have, therefore, a handy reference volume for the years 1913-22. It may be said here that the best publication to consult for current wholesale and retail index-numbers is the *Bulletin mensuel de l'Institut International de Statistique* (available in the Library).

A. L. Bowley.

Lords-Lieutenant in the Sixteenth Century. By Gladys Scott Thomson. London : Longmans. 1923. pp. ix.+266. 9s. net.

The lord-lieutenant of the county is still the most dignified of all local officials, even though his title is now but the reflection of an ancient glory. He was, in origin, a typically Tudor creation. In the reign of Henry VIII special commissions were issued to lieutenants of the King to arm bands of men in various districts ; under his successor practically every county had its appointed lieutenant to deal with the Catholic risings of 1550 ; in Mary's reign they were formally authorized by statute. They replaced the sheriff as head of the local militia. They acted as a kind of supervisor of the peace, with the power to call upon the local justices for aid. They were also keepers of the Records and appointed the Clerk of the Peace. They assisted in raising money to meet exceptional expenditure, as in raising a loan to pay for defence against the Armada in 1588. They acted as watch-dogs against undue recusancy within their area ; and they seem to have exercised a general supervision over the economic organization of the county. Upon all of this Miss Thomson has written an admirable study. If it is not an exciting

book, that is largely because the Justice of the Peace remained the pivot of the Tudor system of local government. But Miss Thomson has made the most of her materials, and the result is a volume that fills a notable gap in our constitutional history. H. J. Laski.

The Principle of Official Independence. By R. M. Dawson, D.Sc. London: P. S. King & Son, Ltd. pp. xi.+257. 10s. 6d. net.

We have surrendered so much of the Benthamite simplicity in government that it has become important to have a full discussion of the alternatives to representation. Even the states of the American Commonwealth are beginning to see that election is not the direct pathway to the political heaven; and the analysis of appointive methods and their possibilities is likely to throw a valuable light upon our needs. Obviously, the really urgent question in appointment is whether those who hold office under this system can be independent of the government and those hidden influences which play upon office; and, if so, what safeguards of independence have so far been evolved. Professor Dawson has set out to analyse Canadian experience in this matter. His book is a useful and sober discussion of the wide field of facts that Canadian government offers. Its real difficulty lies in the fact that the Canadian world has so far done little that can be called creative. The judicial experience is built upon the English tradition. The Civil Service of Canada is hardly likely to be a valuable field of discussion until its conditions offer to able men the same large scope that men like Morant were able to exert in this country. The Governor-General is, after all, so largely an honorific post that it contributes little to our understanding of the issue. The two real factors in Canada are the permanent commissions and the Senate; the one has been an experience on the whole attended by success, the other perhaps the most complete legislative failure in modern history. And the success, it may be urged, of the Commissions is due less to the men who sit upon them than to the subjects with which they deal. The disappointing element in Professor Dawson's survey is inherent in his material. The rapid expansion of Canada, especially in the economic field, has made corruption almost a commonplace. The tradition of official independence is too new to contribute dogmas to political science. Indeed the main result that emerges from Professor Dawson's studies is the difficulty of securing the thing he sees to be important. If he would make similar researches into the civil services of England and Germany the result would be much more fruitful.

H. J. Laski.

Whither France? Whither Europe? Joseph Caillaux. Translated by K. M. Armstrong. London: T. Fisher Unwin. 1923. pp. xiii.+208. 10s. net.

Right answers obtained by wrong methods are apt to puzzle examiners; a similar difficulty makes this book peculiarly hard to

review. One is often confronted in it by pages which one feels give the key to a puzzling problem, or with conclusions which one had long wished to express so well, but from the first page to the last one encounters glaring misstatements, rash overstatements, patent *non sequiturs*. Yet, when about to throw down the book in disgust, one is startled by the thought that, though translated *unchanged* eighteen months after it was written and now reviewed six months later still, there is very little to which the confused and often surprising events of those two years have given the lie, very much to which those events have given increasing point. M. Caillaux would seem to possess that typical feminine mind of tradition which works best, not by logic, but by instinctive insight, an instinct which will often leave the rigid reasoner far behind, but will often err and may err grotesquely. Thus he has produced a book which may be read, and read with much advantage, but must not be swallowed.

And yet M. Caillaux in one sense is supremely rational. He is of the Keynes, the Rathenaus, the Norman Angells, who are satisfied that when they have proved economic advantage or disadvantage the discussion is closed. His practical career in French politics was ruined in this way; the man who, whether before, during, or after the war, opposed the economic advantages of co-operation with Germany to the cry of nationalist France for "revenge" or "security," was doomed to failure; and one fears that the same ill-fortune awaits the views suggested by his book, economic common sense though many of them may be.

What, then, is his analysis of the situation?

In pre-war years International Finance made for peace, but was weak and undecided, its spasmodic efforts towards an economically unified Europe were thwarted by the industrials, with their policy of tariff, over-production and the fight for the world's markets. The war has brought an addition of 1,300 milliards of francs to the existing 200 milliards of European State debts, a burden on future industry compared with which the much-maligned "capitalist profits" are as nothing. In France the situation is worse than elsewhere, thanks to the steady refusal of the author's income-tax proposals; taxes have been inadequate, uneven, and generally evaded and the State is hopelessly bankrupt.

And this quite apart from the Reparations Question. Even on the supposition, almost impossibly favourable to France, that England and the U.S.A. accepted payment of both France and Germany's obligations in C bonds, even the cost of restoration of war-devastations cannot be paid by a willing Germany without such an encouragement of German industry and trade as would ruin France.

One result of the national debts has been largely to increase the monetary inflation, the burden of which falls on the bourgeoisie and the proletariat. The war broke down the whole organization of

international trade, and a policy of increasing national self-sufficiency and isolation, adopted then as a necessity, is being continued as a settled policy, as seen in the multiplication and raising of tariffs. This policy makes more difficult the already almost impossible task of international financial settlement, which can only be achieved through international trade. The actual peace terms and the subsequent policy of all countries has thus been a wilful refusal to adopt the only measures which could reconstruct war's ravages or resettle the finances of Europe. In Eastern Europe disorganization has gone further and has resulted in the complete ruin of industry, the temporary—but only temporary—advantage of the peasant, translated in many cases into actual political power—the "green" rising, and a return to domestic industry. In the West the movement is for the moment masked by an even greater danger, the trustification of industry on so huge a scale that the "Stinnes" of the new age are above the nation and above the law, while the workers, under a combination of national debt, monopoly profits, inflation and tariffs, are reduced to a misery which must end in a "red" rising.

The only solution is the creation in each country of an economic state, subordinated perhaps to the political, but federated if not united to the economic organization and industrial parliaments of other countries, and assisted by a financial union and the collection of national debts into a great European debt. Even then the situation is not hopeful, for while in the similar disintegration of the Roman Empire the spiritual seed of reconstruction was there in the infant Church, to-day no such great spiritual focus and force is visible and without it European civilization is but a race to the abyss.

The Russian ambassador Nekludoff, reporting to Petrograd on the French situation a few months before the Caillaux Ministry began, remarked that the French radical-socialist was essentially bourgeois-conservative, and the words of our radical-socialist author are proof of the penetration of this judgment. There may be "advanced ideas" and rather Utopian schemes in the chapter on Reconstruction, but the tone throughout is not that of the leader's inspiring summons to the Promised Land, but of the despairing cry for the return of old days of the bourgeois now threatened at once by the mountain of State debts, the disorganization of industry and trade, the overwhelming trust above and the rumbling of syndicalist revolt below. In his fear and despair he may be prepared for large measures of socialization and workers' control, but it is as a straw to the drowning, not as a new heaven and earth, that the new system appears. The "Right to the Whole Produce of Labour" may peep out in the argument, but it is not of the essence of the book.

L. G. Robinson.

Hungary and Democracy. By C. J. C. STREET, with a foreword by T. P. O'Connor. London : T. Fisher Unwin. 1923. pp. 207. 10s. 6d. net.

This is a competent summary of one side of the case between Slav and Magyar. The Magyar devil is black—here is ample evidence did not one know it well already. But the absence of any redeeming patch of lighter shade, or of any trace of such blackness on the side of Slovak, Croat, or Rumanian leaves one in the world of melodrama rather than of life. The whole work is obviously and confessedly designed to counter the efforts of Lord Newton and his school for the revision of the Trianon Treaty which took from Magyar control all but some 800,000 of the ten million Germans, Slavs and Rumanians who until 1918 had been its subjects, while making a million and a half Magyars subject to Slav and Rumanian.

Mr. Street has chosen his starting point with some skill. The space devoted to the account of Magyar oppression from the Ausgleich of 1867 to 1914 is rather excessive. That side of the picture had already been drawn so well by Dr. Seton-Watson—from whose work Mr. Street borrows very largely indeed. Had he cared to introduce this narrative by even a short résumé of events from 1840-67, it would have become evident how far the ideal of " the Unitary Hungarian State "—with all its evil consequences to subject-nationalities—was forced on the minds of leaders like Kossuth by the vital necessity of presenting a united front to the increasing pressure from Vienna.

Then, to take an example from the other end of the story, it is surely at this time of day grotesque to discuss the Magyar attitude to the Croats on the eve of 1914, with hardly a hint of the pan-Serb and pan-Slav movements and the Russian plans and intrigues whose success inevitably involved the break-up of the Hungarian State as well as of the wider Habsburg Empire.

With 1914 one enters on less familiar ground, and the account of Magyar treatment of subject-nationalities during and since the war is of great interest and value. One could wish more space had been spared for those exciting months of the Bela Kun regime and its overthrow under Horthy and the White Terror. It might well have been spared from the unduly long chapter on Magyar propaganda since the war. That propaganda was arrogant, German in thoroughness, rather clumsy, and very amusing ; but were the Magyars the only nationality of Eastern Europe to besiege the *coulisses* of the Conference Chambers with that agreeable mixture of " the prose of statistics with the poetry of patriotism," for which, according to Mr. Street, the director of the Hungarian census was praised by Count Apponyi ?

As to the treatment of subject nationalities under the present Hungarian Republic, one is not surprised, after the author's account of pre-war oppression, to find that the leopard has not changed his spots ; but is there now the same ground for complaint ?

The Habsburg dominions have been Balkanized as far as possible on a nationality-basis ; can one complain thereafter if, in a Hungary of $7\frac{1}{2}$ millions, remnants of former subject populations—in no single case amounting to 200,000 and scattered at that—have to submit to a process of absorption ? One may wish that the Turkish plan of a transfer of populations had been introduced—on methods other than those of Anatolia. But, failing that, the corollary of reducing Magyardom as far as possible to the area of Magyar population is surely that within that area the "Unitary Hungarian State" shall be permitted.

One has not space to notice the chapters devoted to an exposure of Magyar "democracy." This section of the book might well serve as a complete "Public Administration" textbook of the methods of gerrymandering and controlling elections.

To resume, the dead horse has here been well and soundly flogged; an overwhelming case is undoubtedly made out against any proposal to restore the mass of liberated Slovak, Croat and Rumanian populations to the crown of St. Stephen, but, one repeats, that case would be more and not less convincing, had the villain appeared less monotonously villainous and the heroes less tiresomely immaculate. L. G. Robinson.

Russia Before Dawn. By F. A. Mackenzie. London : T. Fisher Unwin. 1923. pp. xiii.+288. Index, map, and 22 photographs. 21s. net.

The old Russia was happy in its Western "biographers," men like Mackenzie Wallace, Leroy-Beaulieu and Dr. Dillon who had lived much of their lives there and had learned thoroughly alike the language, life and mentality of the people, yet had not lost the art of seeing them through Western eyes. It is unfortunate that such men are not, for obvious reasons, the welcome guests of the new regime, so that for a picture of the new Russia one is forced to attempt to combine the somewhat lifeless official "Reports," the claims of the Bolshevik apologist, the denials of the *émigré*, and the "revelations" of journalists, politicians and other rapid travellers —all alike of the journalistic order.

This book does not fill the gap, but it is a particularly able and unbiased work of the last-named class. Mr. Mackenzie is best known as a war-correspondent, and in such a case one looks for power of observation, contempt of hardship and a certain pushfulness and persistence in the search for news, and a vividly interesting literary presentation, and in none of these expectations is one disappointed. More surprising and very welcome in a work of this class is the clear and careful survey of the administrative organs of the Bolsheviki, of the stages in the retrogression from Communism, and of the origin and meaning of the "Living Church" movement.

The author was the first Western European to be allowed to enter Asiatic Russia since the peace, and the account of his journey from

Samara to Irkutsk and Lake Baikal is perhaps the most interesting and certainly the most novel part of the book. The photographs are well chosen and reproduced. Whether or no in these days 21s. is an excessive price for travellers' experiences of this kind is another matter; the answer lies with the public.

L. G. Robinson.

Constitutional Developments in Mysore. Report of the Committee appointed to work out the details of the Scheme. Bangalore: Government Press. 1923.

This report embodies proposals for the introduction of a first instalment of modern representative, constitutional institutions into Mysore. Mysore is the greatest of the Hindu native states (with an area of 29,461 square miles and a population of 5,705,359, of whom 92 per cent. are Hindus), and has long been one of the most progressive of the Indian states. An Economic Conference has met annually since 1911; the State boasts a Superintendent of Sericulture and a Department of Industries and Commerce; in 1913 the State-aided Bank of Mysore was started; 1916 saw the inauguration of a separate university, including economics in its curriculum; considerable advance has been made in both primary and technical education, whilst the State possesses a so-called "constructive" economic policy and considerable manufactures.

Constitutionally, also, Mysore is of great interest. It is the outstanding example of the reversal of the early nineteenth century policy of annexation, as in 1881 the State, which had for many years been under direct British administration, was restored to the old Hindu ruling house. Relations between the Government of India and the Mysore Government were at first regulated by an "Instrument of Transfer," but, later, by the "Treaty" of 1902, which contains what is considered to be the most complete statement of the relations subsisting between the Government of British India and its feudatories. Mysore, like Travancore, already has a Representative Assembly which, however, has purely advisory powers and is convened for a few days only every year, when, after an address by the Dewar, it is graciously permitted to discuss public questions and is then dismissed.

The main object of the proposed reforms appears to be to reconstruct the existing Representative Assembly so as to give it a definite place in the Constitution, and to readjust the position and powers of the Legislative Council, in particular regulating its power of voting on the Annual State Budget. The report contains a careful review of the whole situation, though the uninitiated might appreciate a short explanatory introduction. The opinions of all parties have been taken into consideration. Perhaps the most interesting feature is the proposal to establish a series of Representative Standing Advisory Committees or Boards, e.g., an Econo-

mic Board, apparently to be constituted along the lines of the modern Advisory Rates and Roads Committees in England. It will be interesting to see how these proposals, which are shortly to be put into effect, work out in practice. VERA ANSTEY.

Statistical Bibliography in Relation to the growth of Modern Civilization. Two lectures delivered in the University of Cambridge, in May, 1922, by E. WYNDHAM HULME, B.A., Sandars Reader in Bibliography, some time Librarian of the Patent Office. 1923.

This learned and interesting work furnishes us with one more reminder that neither the writers of books nor the teachers and students of various branches of knowledge (to which the aforesaid books may or may not make a valuable contribution) concern themselves very much with the " science " of Bibliography. This is to be regretted, because the study of Bibliography, as one of the essential " instruments of research," provides an important discipline which teachers cannot expect their students to undergo without expert advice and practical assistance.

One cause of this neglected discipline is to be found in the habitual toleration, by teachers and examiners, of casual " Lists of Authorities " ; another explanation can, perhaps, be found in the habit of dependence on professional guidance, which is easily formed by frequenters of archives or libraries. For occasional researches such a method may serve one's turn ; but for an extensive survey, like that made by Mr. and Mrs. Sidney Webb of Local Government, bibliography constitutes the framework of the structure, as well as a key to the unpublished sources. Fortunately the scientific study of Bibliography, after being kept alive by a London University seminar,[1] has now been included in the diploma course of the Library Association,[2] and is further stimulated by the publication of a learned Journal.[3]

To these professional studies we are indebted for many valuable monographs, such as the two lectures which Mr. Hulme has published here, dealing with the Bibliography of the Literature of Civilization. The author had already published two earlier lectures on the professional aspect of the subject, and he tells us that the publication of these Sandars Readership Lectures as separate booklets was due to the fact that they would appeal to widely different classes of the community. It is not altogether surprising to learn that bibliographical studies do not interest historical students ; but one may at least hope that students of librarianship will not exclude the growth of modern civilization from their survey of scientific literature. Indeed, one has a guilty feeling that students

[1] London School of Economics. *Bibliographies.* No. 4.
[2] Held at University College. [3] *The Bibliographical Journal.*

of History and Economics are less likely to profit by these valuable researches than librarians or Patent Officers.

It is true that in these pages the historian will meet with some familiar data. The invaluable hand list of Scientific MSS., compiled by Dr. and Mrs. Charles Singer, has been rearranged by Mr. Hulme under modern " grouping " headings. His comments upon the results of this survey are interesting ; but although he has clearly recognized the unfairness of accepting " mediæval literature as a gauge of the intellectual activities or capacity of the period," Mr. Hulme is apparently content that we should regard this list as " a bird's-eye view of the book learning of the Middle Ages." Perhaps this view does not give sufficient credit to the capacity of the mediæval clerk, whom Mr. Hulme seems to regard only as a religious person. Effective substitutes for a didactic literature may be found in oral tradition and especially in the continuous records preserved in archives and not in monastic aumbreys. Although *l'Esclarcissement de la Langue Française* was not printed until 1530, similar works were in everyday use in the thirteenth century, while the *Expositiones Vocabulorum* and a *Modus legendi Abbreviationes in utrique Jure*, probably sold more copies in manuscript than in print. Again, the standard of mediæval legal knowledge must be measured by reference not merely to textbooks, but to the Plea Rolls and the Year Books ; and even professional treatises on husbandry or architecture can be usefully supplemented by the manorial Compotus Roll and other administrative records. A wider knowledge of the extent and value of these disciplines of mediæval study would enable English students to make a more profitable use of the admirable Tabular Surveys which Mr. Hulme has compiled for architecture, art, and the textile industries in the post-mediæval period, for the habit of working according to precedents was not confined to the Middle Ages, nor is it still without a beneficial influence on our modern industries and institutions.

It may seem ungracious to suggest improvements in an adventurous and helpful essay, and this may savour of presumption in the case of an expert of Mr. Hulme's attainments ; but theories stated as historical facts require some reference to authorities. Instances may be found here in the definition of Elizabethan monopolies, the results of Phipps' salvage venture, and the suggestion that the date of the Industrial Revolution might be advanced by four years. In connection with the point mentioned last, it may be noticed that Mr. Hulme gives the date of the Treaty of Paris as 1760.

The general assumption that underlies these and other bibliographical statistics—that the progress of learning and of civilization can be measured by the zeal with which so-called researchers rush into print—is one which it would be invidious as well as unprofitable to discuss here.

HUBERT HALL.

Economic Essays. By DAVID RICARDO, edited with introductory essay and notes by E. C. K. Gonner. London: G. Bell and Sons. 1923.

McCulloch's edition of Ricardo's *Works* being out of print and difficult to procure, it was a happy thought to bring out a reprint of Ricardo's pamphlets, without which his *Principles* are unintelligible. It is unfortunate, however, that a good ship was spoilt for want of a ha'porth of tar—the *Plan for the Establishment of a National Bank*, and the *Essay on the Funding System* seemed to the late Sir Edward Gonner " ephemeral in their interest " and not " to call for reproduction." But the first of these contains the suggestion that the issue of notes might well be separated from banking, which later took shape in the separation of the Issue and Banking Departments of the Bank of England, and the other has sufficient bearing on the proposal for a capital levy to get into to-day's discussion of that proposal, as may be seen in the September *Economic Journal*, p. 379. Instead of leaving out two of the pamphlets printed in the *Works*, it would have been better to add the letters to the *Morning Chronicle*, which were the first draft of the *High Price of Bullion*. It was rash also to copy the *Bullion* tract from McCulloch's version instead of from the original edition, though no discrepancy is very obvious except that the title is much abbreviated.

It is perhaps justice that Ricardo, who was so careless about the presentation of his matter that he did not even number his chapters correctly, should suffer more than any other economist from the disorderliness of the publishing trade. Will the youngest of us ever see a complete and scholarly edition of the whole of his works, including the speeches, in *Hansard*, arranged in chronological order?

E. CANNAN.

Our Home Ports. By SANFORD COLE. London: Effingham Wilson. 1923. pp. 273.

This book contains short histories of the principal ports of Great Britain with some particulars of their dock accommodation. The extent of the shipbuilding and marine engineering activities are briefly reviewed. In many cases statistics are quoted to show the rise and fall of imports and exports at the ports.

W. T. STEPHENSON.

School Notes

Students

The total number of regular students enrolled for the session 1922-3 was 852, and the number of occasionals 1,523, making the total of all students for the session 2,375.

Examination Successes

The degree of D.Sc. (Economics) has been conferred on Gladys Broughton and Herman Finer. The degree of Ph.D. (Economics) has been conferred on K. Ogata, P. P. Pillai, and N. J. Shah. The following have obtained the degree of M.Sc. (Economics): M. N. Asnodkar, G. F. Drummond, H. M. Jagtiani, J. W. F. Rowe.

In the Open Competitive Examination for Appointments in the Indian Civil Service and Eastern Cadetships in the Colonial Services, Arnold Whittaker obtained third place out of 79 candidates, and in the examination held for the appointment of Assistant Inspector of Taxes, Sydney Caine and Harry Woolsey were successful, obtaining fourth and sixteenth places respectively out of eighty-five candidates. Mr. Whittaker has since been awarded a scholarship at Christchurch for the year at Oxford required by the Civil Service regulations in preparation for his work in India.

Scholarships, Studentships, and Prizes

School of Economics Scholarships of the value of £50 per annum (in addition to remission of tuition fees) have been awarded to D. E. Edwards and Kathleen Smallshaw; and Bursaries, entitling the holders to remission of School fees, to Eileen Hall, S. Nussbaum, J. C. Rauch, R. G. Waller, and Frances Gray.

The Worshipful Company of Cutlers have awarded Company Scholarships to J. C. R. Price and J. D. Watkins.

The Gerstenberg Scholarship has been awarded to P. S. Belasco.

The Gladstone Prize, awarded on the results of the Intermediate B.Sc. (Econ.) Examination, has this year been won by Jane Tabrisky.

A School of Economics Research Studentship, known as the Ratan Tata Studentship, of the value of £175, tenable for one or two years, will be awarded in December, 1923, if a suitable candidate applies. Candidates should apply to the Secretary of the School for a form of application which should be completed and returned not later than November 15th.

Lectures

1. A series of eight lectures on "The League of Nations at Work" will be given by Mr. A. E. Zimmern, M.A., at the School on Mondays and Fridays at 5 p.m., beginning Monday, November 12th. (Mr. Zimmern will hold a discussion class once a week at a time to be arranged. Admission to this will be limited to regular students of the School, accepted by Mr. Zimmern.) The fee for the course will be 16s.

2. A lecture open to the public without fee or ticket on the "Origin of the Munroe Doctrine" will be given on Friday, November 30th, at 5 p.m., by Mr. G. E. Morison.

Other public lectures to be given this term include: "The Problem of London Traffic"—three lectures at 5.30 p.m. on Thursdays—

1. "The Evolution of the Problem," by Sir Lynden Macassey, K.B.E., K.C., on Thursday, November 1st.
2. "The Objects and Effects of Traffic Control," by Frank Pick, Assistant Managing Director of the Underground Railways, on Thursday, November 15th.
3. "The Financial and Municipal Problem," by H. H. Gordon, B.A., M.Inst.T., on Thursday, December 13th.

A lecture on "War Office Administration," by Major-Gen. Sir G. F. Ellison, K.C.M.G., will be given on November 8th, and one on "The Psychology of Communication," by John Lee, M.A., M.Com., on December 12th.

Hospital Lectures and Counter-Lectures.

A second series of Lectures and Counter-Lectures in aid of the combined Hospitals Appeal Fund is being arranged at the School by the Committee of the Fund. Full announcements will appear in the Press some time before the course begins.

Books and Periodicals Received

W. Kokovtzoff : *Five Years of Bolshevik Dictatorship.* Russian Manufacturers' and Merchants' Association in London.
A. Rawlinson : *True Principle of Money.* London : P. S. King and Son Ltd.
W. R. Scott : *Adam Smith.* A lecture before the British Academy. Humphrey Milford, Oxford University Press.
Oxford Conference at New College, Oxford : *Christian Order of Industry Series,* No. 3.

Bollettino della Emigrazione.
Citta di Milano.
Giornale degli Economisti.
The Irish Economist.
Indian Sociological Review.
La Reforma Sociale.
Political Science Quarterly and Supplement.
The Sociological Review.
Zeitschrift für Volkswirtschaft und Socialpolitik.

Index

It has been decided to publish an Index and title-page to Economica every two years. The Index to the issues of the first two years of the Journal is now in preparation, and will be sent to subscribers on completion.

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